CATS NEWSLETTER

CAPITAL AREA TIMEX SINCLAIR
USERS GROUP
P.O. Box 467
Fairfax Station, VA 22039

$1.00 per copy
Please support your computer
JOIN C.A.T.S.!

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FEBRUARY/MARCH
1989

IN THIS ISSUE

24 PAGE DOUBLE ISSUE

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Dave Bennett Bill Strick Jim Wallace Chuck Dawson
Chris Seguin Ray Byler Timothy Swenson

PRESIDENTIAL RAMBLINGS

Welcome to our 24-page double-sized, double issue.

☆ NOMINATING COMMITTEE

I will be asking for volunteers at the March meeting to serve on the nominating committee. It's time to begin the nomination and selection process for next year's (July to June) officers.

☆ NEW OFFICER

The Executive Committee voted to begin the process of modifying our constitution to add a new officer position, Corresponding Secretary. The individual in this position would handle correspondence to the club and coordinate and follow-up on responses from the appropriate club member or members. We will discuss this new position at the meeting.

☆ NEWSLETTER

I would like to re-iterate what I said at the February meeting: I would encourage everyone to help Vernon with the newsletter by coming up with articles. We can also help him by getting the articles in early. (Yes, this means me, too!)

☆ CAPITAL FEST

Plans are moving along smoothly for the Capital Fest thanks to Audrey and her committee. There have been initial mailings to people who have attended other fests, initial vendor contacts and notices of the meeting in several newsletters and vendors' pricelists. There has been lots of positive responses. We still need additional volunteers to help; remember that the CAPITAL FEST WANTS YOU! At least spring for the early admision fee of $7.00 and banquet tickets at $16.50, if you haven't already. The Capital Fest's address is P.O. Box 24, Garrett Park, MD 20896-0024.

☆ BBS

The CATS bulletin board is up and running at Mark's house courtesy of Mark and of Steve Greene. It now has a lot of messages on the CAPITAL FEST so try it out. The number is 588-0579 and it's available 24 hours a day. The bits, parity and stop bits particulars are 8-N-1. As they told Mikey, "try it, you'll like it!"

☆ SNUG

We got a letter from Mel Nathanson describing his progress to date on getting the Sinclair NorthAmerica Users Group (SNUG) going. He has 73 members (including CATS) and the charter was approved by the State of Florida on Dec 27th. He and others are setting up

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FROM THE EDITOR

Last month you may have noticed—at least I hope you did—that we didn't publish a newsletter. This is only the second time in six years that we have missed an issue and like the first, there is a very good reason. Our newsletter is published by the folks at Montgomery County Mental Health. I imagine that some of you will be saying that this explains the editor! Well, they relocated their offices and the printing operation at the time we would have sent them the February newsletter and we had no guarantee that it would reach you before the 2nd Saturday in February. We needed that guarantee, since the meeting was to be delayed till the 25th. It was decided to make this issue (February/March) a double, 24 page issue and send out postcards concerning the changed February meeting date. It was my fault that I didn't put the meeting change in the January newsletter, I knew about it in November, it just slipped my mind. If I caused anyone any inconvenience, I'm sorry.

- **NEW SOFTWARE**

This month rather than publish my "QL on the QT" column separately, I thought that I'd combine it with my editorial. That's what I like about being editor, you get to make these big decisions.

- **TAX-I-QL/88**

I want to draw your attention to TAX-I-QL/88 from Emsoft (EMSOFT Division, Estate Management Services, P.O. Box 8763, Boston, MA 02114-8763). This is the third year that Peter Hale (Mr. Emsoft) has brought out a tax program for the QL and, like good wine, it improves with age. In reality, it is a giant Abacus file and what Peter can do with the Abacus program is truly amazing! The manual is better this year and the program makes simple the paying of Uncle Sam's due(?). Mind you, it doesn't make the taxes any more palatable, just easier. Those of ypu that had the previous editions will immediately know something is new when it loads. Previous editions took 5 minutes to load, now it pops (relatively) onto the screen. While this is the only tax program for the QL, this is not the reason I recommend it to you. It is developed by an accountant and for $18.95 it fits my bill for having real value added. With this program you are free from the H. & R. Block tyranny. You must have at least 256K of memory; however, that shouldn't be too much of a problem because most serious QL users have a 512K expansion or a Trump Card. In my book it is MUST HAVE software. Emsoft also publishes an asset management program, Trustfund, based on Archive. Next month I will be making an in-depth look at it, as well as Emsoft itself.

- **PROFESSIONAL PUBLISHER**

Elswere in the issue there is a review of Digital Precision's new entry in the desktop publishing sweepstakes. For those contemplating an upgrade of the existing v2.0 DTP, please read this review before you purchase the program.

- **HELP WANTED: NEWSLETTER EDITOR**

In August I will have been editor for two years and, though it is not as long a tenure as Mark and Jules, I feel like it is time to get some new blood, and some might say, a fresh insight, into the job. Last year we were selected as the Number 2 newsletter in North America. While I was disappointed that we were not selected as the best, I felt that, like Avis, we could try harder. We have and I think it shows. Most of our material is "home grown" and we can rightly say that we cover all the Sinclair machines (with the exception of Amstrad, which really isn't a Sinclair). As the custodian of the CATS mail box, I scan all of the incoming N/Ls to see if they contain articles which would interest our members. Most do not and there are only a few which carry original material. I use it when we have space. My basic policy is that we will not be a "clipping service". To read what the other groups are publishing, come to the meeting and check out the N/L exchange files. If we can't generate enough material ourselves then we ought not to publish a newsletter. So back to the central point of this discourse, a newsletter editor(s) is needed. Filipo Frati has tentatively held up his hand to volunteer, but he will need some help, besides that of contributing articles. I know I could

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Key Dates

MARCH

11 General Membership Meeting

21 Executive Board Meeting

24 April Newsletter **DEADLINE**

APRIL

8 General Membership Meeting

18 Executive Board Meeting

21 May Newsletter **DEADLINE**

MAY

5-7 **CAPITALFEST**

MARCH AGENDA

11:00 Hardware Workshop

2:00 General Meeting

2:45 Interclub Transfers
by Mike Warmick

4:30 Adjourn

NEWSLETTER SUBMISSIONS

Submissions for the newsletter can be in hard copy, with *columns 2 3/8 inches wide* or, preferably, magnetic media. For the QL, microdrive cartridge, 5 1/4" DS/DD or Quad density disks, or 3 1/2" disks. For the ZX81, TS1000, or 2068, cassettes only, with titles on the box.

Send material to:

Editor, CATS Newsletter

Box 467

Fairfax Station, VA 22039

POTPOURRI

News Around the Beltway

CATS CAPITAL FEST

Things are moving along real well for the CAPITAL FEST! We would like to invite all Vendors and User Groups to participate in the affair. [redacted] Please get all reservations for rooms, advance admission tickets, and the banquet, sent in as soon as possible! The cut-off is APRIL 5, 1989! When making hotel reservations, please call: 1-301-459-6700, NOT the "800" number! If the 800 number is used, they will tell you that the hotel is completely booked for that weekend--THIS IS NOT TRUE! We have only been assigned a block of 50 rooms so far; apparently as a matter of policy the national reservation system "closes" the hotel whenever a group takes a block of rooms! Maybe in OUR case we may nearly fill the place, which would justify the policy; this happened at Indianapolis two years ago, why not here? If you'd rather not call, then drop a note to the: CATS CAPITAL FEST / P. O. Box 24 / Garrett Park MD 20896 , and we'll mail you a reservation card. Price of a hotel room (single or double) is $62.00, plus 10% tax per night. This includes 1 free admission to the next day's show to each room, for the first 50 rooms rented before April 5th. The Friday night informal banquet is $16.50 per person, with limited seating! Vendor tables are $25.00 each, and User Group tables are $[illegible].00. TWO day admission tickets are $7.00 each. These tickets will be $10.00 each at the door ($5 per day).

ORDER NOW AND SAVE! HELP US TO MAKE THIS THE BEST FEST SO FAR!

There will be a good supply of vendors, plenty of dynamic speakers, and FUN for everyone! Hope to see YOU there the first weekend in May!

MEMBERSHIP CORNER

In the last several months we have had many renewals and some new members, and even a few "old" members re-joining after a lapse!

First, let's welcome the new members: Bill List, 521 Greenwood Rd., Linthicum, MD, 21090.

Timothy Swenson, 6145-603 Leesburg Pike, Falls Church VA, 22041.

Three members have moved:

Timothy Acord, 8104 Little Ridge Lane, Fairfax Station, VA 22039-3035.

Frank Kadi, 440 Seaview Ct.,#608, Marco Island, FL 33937.

March Renick, 1368 Wood Circle, St. Cloud, FL 32769

Lou Feher has rejoined us after a short absence: he's at 9420 Washington Blvd, Seabrook, MD 20706.

The following have renewed:

Timothy Acord, Larry Anderson, Edward Arnold, Bill Barnhart, Phil Barnhart, David Bennett, Tom Bent, Ige Bola, Bob Curnutt, Charles Dickson, Ruth Fegley, Lee Gayman, Stan Guttenberg, A. Werner Horlbeck, Bob Howard, Frank Kadi, Edward Kapp, Arthur Lewis III, Lloyd Lewis, Joe Miller, Theodore Morley, Michael Morris, Akinbola Olowofoyeku, Theodore Osheroff, Richard Parker, Manuel Quintero, March Renick, George Rey, Russell Ryan, H. L. Schaaf, Vernon Smith, John P. Stakem, Warren Taylor, George White.

BE SURE TO RENEW YOUR MEMBERSHIP ON TIME

EXECUTIVE RUMBLINGS 1-24-89

Well folks, welcome to the New Year, and a new adventure in the Wide Sinclair World!

UPDATE has suggested that the officers for SNUG be elected at our May CapitalFest. For those interested, be there.

As for the Fest, we're getting the bits & pieces in order. Vendors will recieve full tax data (welcome to the real world). Also we have an ever growing vendors list.

This is Vernon Smith's last year as Editor, and we're greatful for the high standard he has set. So that this job won't fall on one person's shoulders, we may start an Editorial Policy. One more thing, have you noticed the February, March heading?

We need time for planning D.C's CapitalFest. With the ever growing mail received, the idea of a Corresponding Secretary was floated, voted, and passed. This person will assist in coordinating your requests for information.

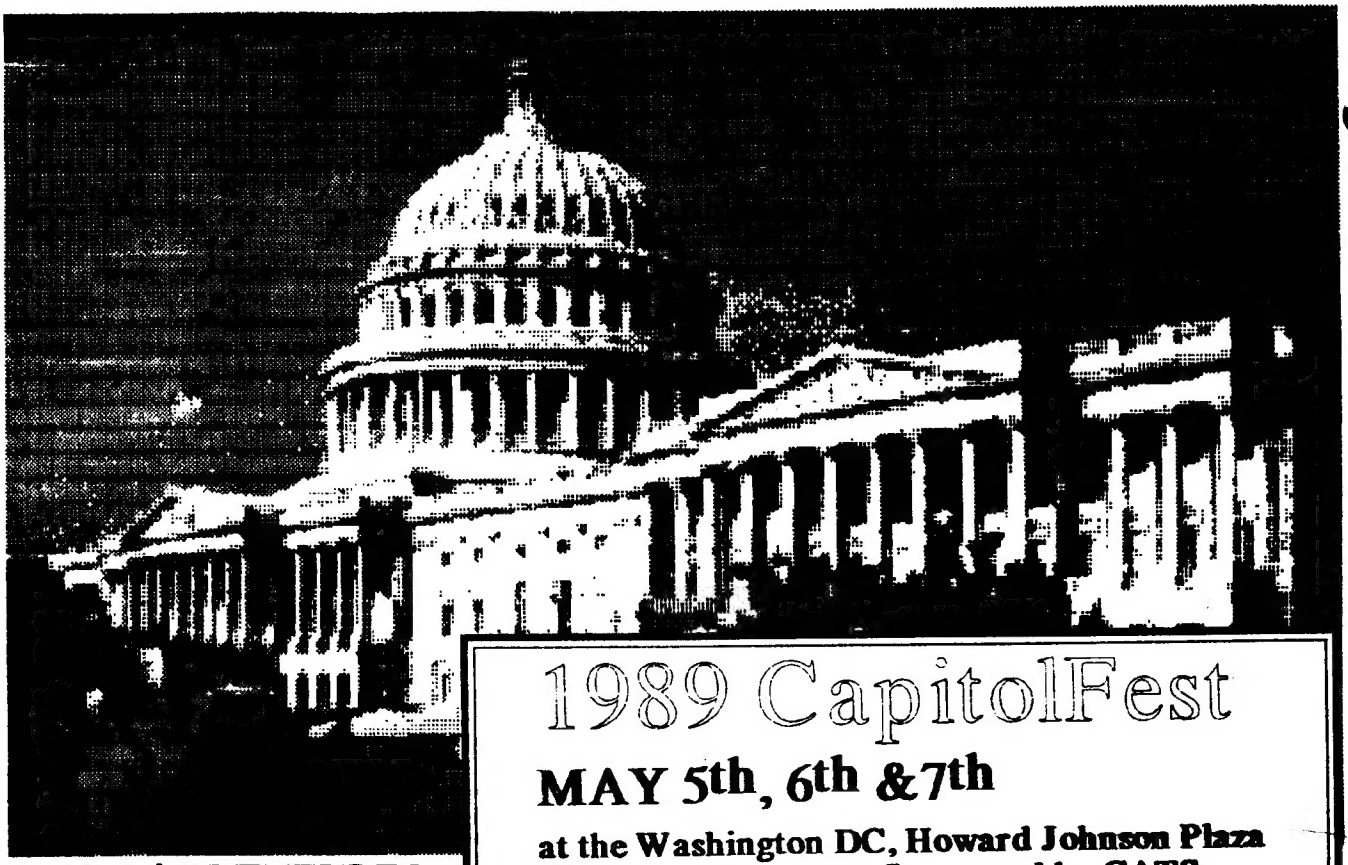
Michael Warmick, Secretary

BBS Notes:

James Wilson.

Lost your address! Please drop in on BBS!

1(301)588-0579



1989 CapitolFest

MAY 5th, 6th &7th

at the Washington DC, Howard Johnson Plaza New Carrollton, MD. Sponsored by CATS.

Make your spring plans now!!

The Capitol Area Timex Sinclair User Group is sponsoring The 1989 Computerfest for all Timex and Sinclair Computers. These include 1000, 2068, QL, Z88 and other Sinclair related PC's. There will be a Friday night Banquet (limited seating) and 2 days of true festivities, including seminars, guest speakers, swap meet, vendors and more...

Washington holds more cultural playtime activities for your whole family than any other US city. Come and see for yourself!

To receive more information about the Fest and Washington DC, drop us a line and we'll send you an information packet:

CATS CAPITOLFEST
PO Box 24
Garrett Park, MD 20896
Contact: Audrey Curnutt
(301) 439-8756
BBS (301) 588-0579

MORE ADVENTURES WITH THE LARKEN DISK SYSTEM by John Riley

PART III — THE BUILDING OF THE AUTOSAVE CIRCUIT

Continued from the last issue

In a couple of hours he breadboarded it for me, while I watched and learned and held the tools. It was around midnight when we applied some test power to it -- it didn't work. So I put it in a bag and took it home.

The next night I took it out again, found a cold solder joint and fixed it, and wired it into the AERCO board for a half-hearted smoke test. This stage, by the way, is very easy. The 5 volt line solders to pin 4 of the feed-through connector (bottom-side), the ground wire can go to pin 32 on the top or the bottom, and the NMI wire itself goes to the NMI line, pin 15 on the top side. Confused? Look at the diagram.

All wired up, I plugged everything back together again, crossed my fingers, and turned on the power. No smoke, and everything initialized normally. So far so good. I loaded in an "unsavable" Spectrum program. The first program screen appeared, so I pressed the button. Nothing happened. Forlorn, I checked the circuit with my meter to make sure that it was getting voltage. It was, and when I touched the meter lead to the NMI portion of the switch, a wondrous thing happened -- the circuit functioned! The NMI line was pulsed a single time, which "froze" the program, and the computer played a little two-note song. Once I got over the surprise, I pushed the "1" key which was supposed to initiate the trasfer, and lo and behold, it performed as advertised. My "unsavable" program was now saved to disk as "NMI-S1.CM". The 2068 smugly played another little song at the end of the save.

I believe that the fault in my circuit lies in a bad push-button switch that I will get around to replacing one day. In the meantime, I am having great fun "zapping" programs over to disk. In fact, I am now quite hungry for Spectrum software, now that I no longer have to wait five minutes for the stuff to load

Continued on Page 5

Continued from Page 4

(see my "want ad" in the classified

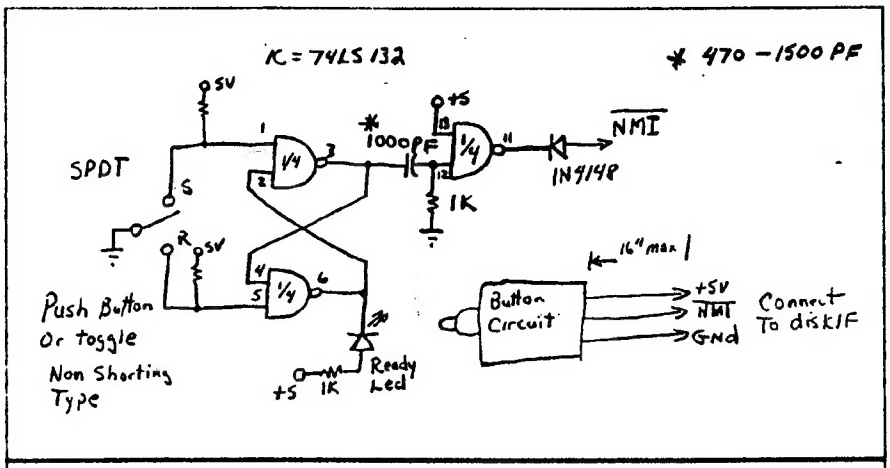


Figure 1. The Larken Autosave Circuit

section).

The switch does more than just save programs, although I have not yet investigated it thoroughly. If, for example, you are playing an adventure game that you want to leave for a while, you can save the game to disk at the point you stop, and the game starts right back at the point you left off when you next load it. The display file of the program can be saved (a "screen dump) at any moment by pushing the Autosave button and then the "s" key. Normally unbreakable loops and crashes can be stopped with the "a" key, which forces a RST 8.

There are, of course, some drawbacks. The biggest one is that the Autosave method is very wasteful of disk space, since it dumps EVERYTHING in the computer's memory into the disk file. This means that I can only hold about four NMI-saved programs on one of my SSDD 190K disks. As a matter of fact, nobody could have more than five such programs on a single disk, because the hardware only allows you to name your programs in five ways (NMI-S(1-5).CM). Also, there is no way to get at cassette-aimed storage commands within the program, so while you can have the main program on disk, files must be saved on cassette. But that's OK, I can live with it until somebody comes up with a solution to the problem.

Now, where did I put that circuit diagram that makes the right joystick port of the 2068 Kempston-compatible.....

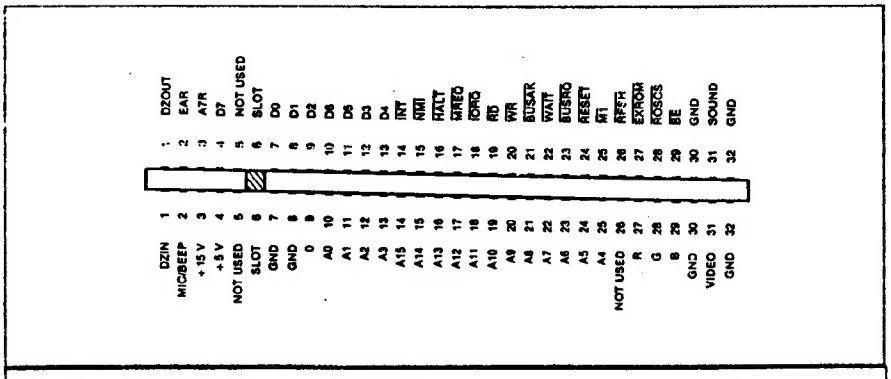


Figure 2. The 2068 Expansion Connector

A FINANCIAL PROGRAM
by Barry Washington

```
  1 REM **PROGRAM TO COMPARE  NET E
ARNINGS OF TAXABLE AND NON-TAXABLE INV
ESTMENTS**
  2 REM ** By L. H. Washington, Jan.
1989 **
  3 BORDER 0: PAPER 6: CLS
  4 POKE 23658,8: POKE 23609,30: GO S
UB 28
  5 PRINT INK 5; BRIGHT 1; PAPER 0;AT
 9,2;"ENTER YOUR INCOME TAX BRACKET";A
T 10,5;"(e.g. 15%, etc.)": INPUT TR: L
ET TR=TR/100
  6 LET W=1-TR
  7 GO SUB 34
  8 PRINT PAPER 0; INK 5;AT 10,2;"ARE
 YOU SEEKING AN EQUIVALENT";AT 11,2;"T
AXABLE OR NON-TAXABLE RATE?";AT 12,9;"
(ENTER T OR NT)": INPUT X$
  9 IF X$="T" THEN GO TO 20
 10 GO SUB 34
 11 PRINT PAPER 0; INK 5;AT 10,2;"ENT
ER INTEREST RATE PAID ON";AT 11,2;"TAX
ABLE INVESTMENT": INPUT TI: LET TI=TI/
100
 12 LET ER2=TI*W
 14 GO SUB 34: PRINT AT 10,2; PAPER 0
; INK 5;"THE EQUIVALENT INTEREST FOR";
AT 11,2;"A NON-TAXBLE INVESTMENT";AT 1
2,2;"WOULD BE ";ER2*100;"%": PAUSE 0
```

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TAPE LIBRARY INFORMATION

The C.A.T.S. tape library is available to all full ($18) members. Prices, per cassette, are $3.00 by mail or $1.00 at the meeting.

C.A.T.S. does not have Public Domain software for sale.

Mail order requests, and submissions for publication, should be sent to the tape librarian:

Rev. John Riley

120 N. Fairlawn Dr.

Carrollton, GA 30117

Checks or money orders should be made payable to C.A.T.S.

We will continue to "compensate" contributors with one free cassette from the library.

PROFESSIONAL PUBLISHER

A QL Software Review by Vernon Smith

Desktop publishing covers a lot of ground. Everything from small display ads, one page fliers, and multi-page newsletters can be produced using specialized programs which meld text and graphics. Two other dtp programs have been developed for the QL, Front Page and Page Designer, but the most extensive and feature laden, as well as the most user friendly, is Desktop Publisher from Digital Precision. Version 1.0 was introduced in 1987. It had many features for the manipulation of graphics, but its handling of text files, left a lot to be desired. Version 2.0, DTP Special Edition, also came out in 1977. It had better file handling and purported to be able to handle imported text files. Last year I critiqued DTP and pointed out that, while it did a pretty good job with graphics, its text handling was still flaky. I couldn't consistently import text files, which I deemed to be the primary feature that DTP, or for that matter any dtp program, should have. Now Digital Precision has introduced Professional Publisher, an upgraded and expanded version of DTP Special Edition. Before you run out and get this $190 program, you should ask yourself what you want to accomplish with your dtp endeavors. This is even more important if you have DTP SE and feel that you want to increase your dtp capabilities. If the most you are going to do is prepare small display type ads or all of your text entry will be directly on the page, you may find the Special Edition will be adequate.

WHAT IT HAS

For starters, it has drop down menus and can work with a mouse. This is a rather dubious feature since there are really very few programs that use a mouse and there is no standardization between the various mice on the market. As with the previous two dtp programs, it has a large number of text and graphic fonts; however, this edition includes what DP terms "high definition fonts". Also included are auxiliary programs to make pages and fonts saved under the earlier DP programs, versions 1.0 and 2.0, readable by Professional Publisher and to change the program defaults. I especially like this capability, as you can set up all the default alphabets and fonts, page variables (memory, width, and height), text parameters, files, rulers, printer driver, and layout. This edition also includes 11 screens of clip art, something that was missing from previous programs and something I felt was a real drawback. Well, given these tools, what can you do?

Pages can be a variety of sizes and they can be dimensioned in inches or centimeters. I should caution you, though, that you can crash the program if you use the wrong sequence of steps when you set the page dimensions. The correct sequence from the Main Menu to get a page dimensioned in inches is 2 (page globals), 5 (), 2 (dimensions) and set the width at 21.6 cm and length at 28.0 cm. Then Escape back to the Main Menu to change the centimeters to inches using 2, 8, and 6. Want to see what I mean by a crash? After you've set the dimensions above, try to change them (2, 5, 2). CRASH! The same is true if you reverse the order above and change the centimeters to inches (2, 8, 6) and then try to change them (2, 5, 2). CRASH! Why? Darned if I know. It shouldn't matter but it does. Horizontal and vertical rulers are provided and the dimensioning will be in centimeters or inches. Text handling is a snap and you can have it flow between multiple columns. Futhermore, Quill and ASCII (_lis) files are handled with ease. Editing can be done after the file is imported, a feature version 2.0 needed. In general, this program has everything that I felt I needed in a dtp program. To Digital Precision's credit, they have rectified the errors of the earlier versions and added things that have enhanced the overall worth of the program. This would be all the program I could have wanted for the QL, if I hadn't tried dtp on the Atari.

WHAT IT NEEDS

First, there is the broad area called *"Why did they/didn't they do that?"* **Why do I have to exit the program to change defaults?** I ought to be able to do it at any time, inside or out. **When you are in a sub menu and use Esc, you are returned to the main menu.** Why not just back to the previous one? **In the same vein, when I am setting the margins, each time I change a value the cursor returns to the top.** Why not to the next entry or just remain there? **I can display a grid or a layout but not both.** Why? **Ticks on the rulers are in inches or centimeters but there is no numbering on the rulers, just the same stupid pixel counter system you had in the earlier versions.** I don't think in pixels and I doubt many of us do. Why not dimension the rulers and throw out the dumb counters? **Why didn't they include the graFixC printer driver with the program?** This is the only driver which supports 24 pin graphics. The docs talk about it and I know it is available since I purchased it from PDQL in February 1988. Is DP just trying to save money? Furthermore, printing with graFix is a long convoluted operation calling for a lot of setup, etc. If this driver were tied to the program, many of the setup questions would already be answered.

Now to narrow down to what I think are the fatal flaws in the program. First, text alphabets are dimensioned in C Size, just like before. The trouble is this is "computer talk" and has little to do with dtp. The type should be dimensioned in "points". Second, the default type style is too "dotty" and looks more like computer draft printing than dtp printing. There is no clean DARK serif style type for text. Also, why have 26 alphabet choices? (Many are unusable at any size greater than 1.1.) Any competent graphics designer will tell you that having more than 3 type styles on a page isn't good. Aldus Pagemaker, an industry standard, only comes with 3 typestyles, but you can vary their size. It is better to vary the highlights (bold, italics, etc.) of the type rather than introduce a new type face. Why not load in additional type styles when needed? Perhaps the space used to

Continued on Page 22

ALERT, ALERT, ALERT by Barry Washington

BUG ALERT

IN

"CALORIBURN"

Corrected Here

```
  1 REM from CTM FOR JUNE '85 BY JOE SMI
TH JR.,BEGINS P.21.
  2 REM >>>SURGERY BY:              L.H.
WASHINGTON 12/29/88<<<
  5 BORDER 0: PAPER 6: INK 0: BEEP .05,2
0: BEEP .05,30: BEEP .05,40
  6 POKE 23658,8: POKE 23609,30: PRINT A
T 7,3;"C A L O R I E "
  7 PRINT AT 10,7;"C O U N T E R
";AT 15,1;"BURNED BY EXERCISE,NOT SPURNED
"
  8 PAUSE 240: CLS : LET C$="CALORIES US
ED= "
  9 GO SUB 100
 10 INPUT "INPUT ACTIVITY # & TIME EXERC
IS-ING. EXPRESS PARTS OF AN HOUR  AS DEC
IMAL FRACTIONS.  EX.:15 MIN.=.25 ";"ACTIV
ITY # ";A;" TIME ";B
 12 IF A>20 OR A<1 OR B<=0 THEN GO TO 10
 20 GO SUB A+500
 24 INPUT "GO AGAIN? Y/N?",A$
 30 IF A$="Y" THEN PRINT AT 13,0;"

          ": GO TO 10
 35 IF A$="N" THEN PRINT '"BYE,DOWNHEAR
TED.": STOP
 100 PRINT "BELOW IS A LIST OF SOME COMM
ON EXERCISE ACTIVITIES: "
 103 PRINT "1-BADMINTON","11-RACKETBALL"
 104 PRINT "2-BASEBALL","12-RUNNING"
 105 PRINT "3-BASKETBALL","13-SITTING"
 106 PRINT "4-BICYCLING","14-SKATING"
 107 PRINT "5-BOWLING","15-SKIING"
 108 PRINT "6-DANCING","16-SOCCER"
 109 PRINT "7-FOOTBALL","17-TABLE TENNIS"
 110 PRINT "8-GOLF","18-TENNIS"
 111 PRINT "9-HANDBALL","19-VOLLEYBALL"
 112 PRINT "10-JOGGING","20-WALKING"
 115 PRINT ;"_____
   "
 198 LET F=230: LET G=250: LET H=300: LET
 I=350: LET J=360: LET K=400: LET L=440:
LET M=500
 199 LET R=550: LET O=560: LET P=600: LET
 Q=900: LET E=100
 200 RETURN
 501 PRINT AT 13,0;"BADMINTON ";B;" HR: "
';C$;B*H: GO TO 1000
 502 PRINT AT 13,0;"BASEBALL ";B;" HR: "'
;C$;B*J: GO TO 1005
 503 PRINT AT 13,0;"BASKETBALL ";B;" HR:
";';C$;B*M: GO TO 1010
 504 PRINT AT 13,0;"BICYCLING ";B;" HR: "
';C$;B*K: GO TO 1015
 505 PRINT AT 13,0;"BOWLING ";B;" HR: "';
C$;B*K: GO TO 1015
 506 PRINT AT 13,0;"DANCING ";B;" HR: "';
C$;B*H: GO TO 1000
 507 PRINT AT 13,0;"FOOTBALL ";B;" HR: "'
;C$;B*R: GO TO 1020
 508 PRINT AT 13,0;"GOLF ";B;" HR: "';C$;
B*G: GO TO 1025
 509 PRINT AT 13,0;"HANDBALL ";B;" HR: "'
;C$;B*P: GO TO 1030
 510 PRINT AT 13,0;"JOGGING ";B;" HR: "';
C$;B*O: GO TO 1035
 511 PRINT AT 13,0;"RACKETBALL ";B;" HR:
"';C$;B*P: GO TO 1030
 512 PRINT AT 13,0;"RUNNING ";B;" HR: "';
C$;B*Q: GO TO 1040
 513 PRINT AT 13,0;"SITTING ";B;" HR: "';
C$;B*E: GO TO 1045
 514 PRINT AT 13,0;"SKATING ";B;" HR: "';
C$;B*K: GO TO 1015
 515 PRINT AT 13,0;"SKIING ";B;" HR: "';C
$;B*P: GO TO 1030
 516 PRINT AT 13,0;"SOCCER ";B;" HR: "';C
$;B*R: GO TO 1020
 517 PRINT AT 13,0;"TABLE TENNIS ";B;" HR
: "';C$;B*F: GO TO 1050
 518 PRINT AT 13,0;"TENNIS ";B;" HR: "';C
$;B*L: GO TO 1055
 519 PRINT AT 13,0;"VOLLEYBALL ";B;" HR:
"';C$;B*I: GO TO 1060
 520 PRINT AT 13,0;"WALKING ";B;" HR: "';
C$;B*H: GO TO 1000
1000 LET C=B*H/7000: GO SUB 1900: GO SUB
2000
1002 LET Z=(B*H/7000): GO SUB 1910: GO TO
 2050
1005 LET C=B*J/7000: GO SUB 1900: GO SUB
2000
1007 LET Z=(B*J/7000): GO SUB 1910: GO TO
 2050
1010 LET C=B*M/7000: GO SUB 1900: GO SUB
2000
1011 LET Z=(B*M/7000): GO SUB 1910: GO TO
 2050
1015 LET C=B*K/7000: GO SUB 1900: GO SUB
2000
1017 LET Z=(B*K/7000): GO SUB 1910: GO TO
 2050
1020 LET C=B*R/7000: GO SUB 1900: GO SUB
2000
1022 LET Z=(B*R/7000): GO SUB 1910: GO TO
 2050
1025 LET C=B*G/7000: GO SUB 1900: GO SUB
2000
1027 LET Z=(B*G/7000): GO SUB 1910: GO TO
 2050
1030 LET C=B*P/7000: GO SUB 1900: GO SUB
2000
1032 LET Z=(B*P/7000): GO SUB 1910: GO TO
 2050
1035 LET C=B*O/7000: GO SUB 1900: GO SUB
2000
1037 LET Z=(B*O/7000): GO SUB 1910: GO TO
 2050
1040 LET C=B*Q/7000: GO SUB 1900: GO SUB
2000
1042 LET Z=(B*Q/7000): GO SUB 1910: GO TO
 2050
1045 LET C=B*E/7000: GO SUB 1900: GO SUB
2000
1047 LET Z=(B*E/7000): GO SUB 1910: GO TO
 2050
1050 LET C=B*F/7000: GO SUB 1900: GO SUB
2000
1052 LET Z=(B*F/7000): GO SUB 1910: GO TO
 2050
1055 LET C=B*L/7000: GO SUB 1900: GO SUB
2000
1057 LET Z=(B*L/7000): GO SUB 1910: GO TO
 2050
1060 LET C=B*I/7000: GO SUB 1900: GO SUB
2000
1062 LET Z=(B*I/7000): GO SUB 1910: GO TO
 2050
1900 LET D=INT ((100*C)+.05)/100: RETURN
1910 LET D=INT ((100*Z*2.205)+.05)/100: R
ETURN
2000 PRINT "WEIGHT LOSS= ";D;" KG": RETUR
N
2050 PRINT "   """;"    "" = ";D;" LB":
RETURN
2080 STOP
3000 CLEAR : SAVE /"CALORIBURN" LINE 1
9000 REM
9010 REM
9020 REM
9030 REM
9100 LET /P=0
9110 OUT 127,27: OUT 127,15
9130 OUT 127,27: OUT 127,81: OUT 127,44
9140 LLIST
```

QL 'n Packet by Bob Diggs

READ'n PRINT QLTerm

Here I am again, back in Florida after a month of travel to California, Arizona and Mexico. Being exposed to the PC world in San Diego, made me think about solving some of my problems with QLTerm, especially reading and printing files from QLterm. Our son, Rob, is into the PC in a big way using his computer, not only for his work but, to get all of the public domain games he can because he is a dedicated game buff. I was amazed at the number of games and other things he had copied from the various bulletin boards. I figured if he could get all that stuff, there was no reason why I couldn't do the same with my QL! Incidently, I used his computer to check into a BBS for Hams. I was sorry I didn't take my INC with me because there was a lot of packet activity and I was getting good coverage with my Icom 2AT. I 'phoned about the Sinclair users group. They are very informal so don't print a news letter. Unfortunately, we were in Mexico (Our first trip in an RV- I now know I prefer a Sailboat!) on meeting night- it would have been good to go because they sounded like a sharp group.

I have CARE ELECTRONICS QJump, Version 2.00 but don't use it much because, when using Quill, I can load files only from the mdv cartridge I used to start Quill. It does a fine job on Super basic, however. It would be nice to have a switch to turn the toolkit on and off as required. So, in thinking about Rob's activity, I wondered if QJump might be my answer. Lo and behold in the documentation there is a procedure VIEW which is intended to allow a file to be examined in a window on the QL display. The default window is #1, but it can be directed to the printer. The program I use is listed below. I have not tried it on a monitor but have no reason to believe it won't work.

```
10 REMark read file
20 MODE 4
30 WINDOW 425,160,45,0,
40 INPUT "Enter a file:" ! a$
50 VIEW a$
60 INPUT "Copy to printer, y/n?" !
   b$
70 IF b$ ="y" THEN GO TO 100:ELSE
   GO TO 90
90 STOP
100 OPEN#3,ser1:PRINT#3, CHR$(27);
   "M"
120 VIEW #3,a$
130 CLOSE#3
```

VIEW truncates the lines to fit the width of the window. When the window is full, CNTRL F5 is generated. Line 100 opens the channel to the printer and turns on elite pitch, which I prefer when printing a file.

ZX81 Screen Clear by John Thomas, San Antonio, TX

Reprinted from Sinc-Link

Here's a nice touch for a program. It allows erasing "bottom lines" rather than all as in CLS.

Enter this demonstration program:

```
 1 REM 1 2 3 4 5 6
10 PRINT"XXXXXX"
20 PRINT "XXXXXX"
30 PRINT "XXXXXX"
40 PRINT "XXXXXX"
50 PRINT "XXXXXX"
60 PRINT "XXXXXX"
70 PRINT "XXXXXX"
80 PRINT "XXXXXX"
90 POKE 16515,20
100 RAND USR 16514
```

Then enter these POKEs

```
POKE 16514, 6
POKE 16515, 22
POKE 16516, 205
POKE 16517, 44
POKE 16518, 10
POKE 16519, 201
```

(This will change the look of the LINE 1 REM)

The example above will leave the top 4 lines (1, 20, 30, and 40) and erases lines 50, 60, 70, and 80.

To use this routine in a program, add the REM line to a program and make USR calls to it when desired. In the program, before using the USR call, POKE 16514 minus the number of lines you want left from the top. May be used many times in a program to keep just the important lines on a screen in view.

The M/C is relocatable as long as the program POKE and call are changed to suit.

Build A Spectrum ROMSwitching Circuit for Your TS2068

by Garry Lessenberry

Reprinted from Chicago Area Timex User Group, Nite-Timex News,

I recently purchased some Spectrum ROMs from Zebra Systems with the hope that I might be able to make my own Spectrum romswitching circuit without paying the high price of those circuits that are commercially available. When I examined the TS-2068's ROM circuitry, I realized that this was an easier task than I had originally assumed! All that I needed was: a Spectrum ROM, an SPDT toggle switch (Radio Shack #275-6725), two feet of insulated wire and two 10K ohm resistors (Radio Shack #271-133)

To start the project, you first remove the top from your computer case by removing the seven screws in the bottom of the case. When you look inside, it will appear as in figure 1. You now remove the Timex ROM (U16). To remove it, gently pry it with a small screwdriver or knife inserted between the socket and the ROM.

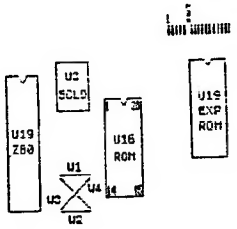


FIGURE A

It is important that you test your Spectrum ROM before constructing this circuit. To test it, place it in the socket from which you have removed the TS-2068 ROM and energize your computer. The Sinclair copyright should be displayed. If not, your ROM may be defective. After the test, remove the Spectrum ROM.

Take your Timex ROM and place your Spectrum ROM directly over it with the notches in the same direction (see figure 3). There should only be a thin space between the two ROMs and all their leads should be touching. Do not leave a lot of space tween these ROMs because clearance is critical when you reassemble you computer! You will now, very gently, bend pin 20 on both ROMs upward untill they are perpindicular to the other pins. You may now solder all of the pins except pin 20. Be careful when soldering. Allow 30 seconds between the soldering of each pin so that you won't overheat and damage the ROMs. To pin 20 of each ROM, you will solder a peice of wire and one end of a 10K ohm resistor. The other end of each 10K ohm resistor will be soldered to pin 28 (+5vdc). The other end of the two wires that you have comming from pin 20 of the two ROMs will be soldered to the toggle switch. The toggle switch has three pins on it. Two of these pins are labled "ON". Solder one wire to each of these two pins. Another wire will be soldered to the middle pin of the the toggle switch with the other end of that wire going to the circuit board and soldered to W1.

At this point, you may reinstall your ROMs into their socket. A hole must be drilled in the rear of your case for mounting your toggle switch. After the toggle switch has been installed, you may replace the top of your computer. Be careful when reinstalling the top of the computer to ensure that there is proper clearance and nothing is being forced!

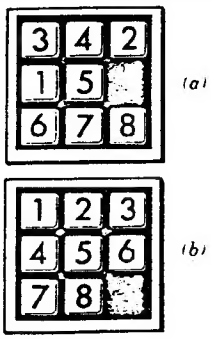
Once your computer is reassembled, you may test it out. You can tell which ROM is selected by the printout after intialization. When in the Spectrum mode, the Sinclair copyright will be displayed. When the TS-2068 mode is selected, the Timex and Sinclair copyrights will both be displayed.

If you have any proplems or questions, you may call me at (312) 473-9415 or leave me a note at the Nite Owl Special BBS (312) 459-5721.

Continued on Page 10

Shifting Squares

Reprinted from Sinc-Link, July/August 1987



Initial (a) and final (b) positions for the tile shifting game.

```
12    WINDOW #52,236,60,20
14    MODE 8
20    init
30    print_board
40    set_shuffle
50    find_space
60    REPeat game
70     win_pos
80     IF SX=0 THEN EXIT game
90     rnd_mve
100    do_move
110    MOVE%=MOVE%+1
120    print_board
130   END REPeat game
140   PRINT "SOLVED IN ";MOVE%
1000  DEFine PROCedure init
1010  DIM B%(9)
1020  DIM M$(9,4)
1030  DIM M%(9)
1040  Q%=0
1050  DATA "24  ","135 ","26  ","157 ","2468"
1060  DATA "359 ","48  ","579 ","68  "
1070  DATA 2,3,2,3,4,3,2,3,2
1080  RESTORE 1050
1090  FOR I=1 TO 9
1100   READ M$(I)
1110  END FOR I
1120  FOR I=1 TO 9
1130   READ M%(I)
1140  END FOR I
1150  MOVE%=0
1499  END DEFine init
1500  DEFine PROCedure print_board
1510  FOR I=1 TO 9
1520   PRINT B%(I);" ";
1530   IF I=INT(I/3)*3 THEN PRINT
1540  END FOR I
1550  PRINT
1560  pause_1
1999  END DEFine print_board
2000  DEFine PROCedure set_shuffle
2010  FOR I=1 TO 9
2020   B%(I)=I
2030  END FOR I
2040  P%=9
2050  N%=RND(25 TO 34)
2060  FOR Z=1 TO N%
2070   rnd_mve
2080   do_move
2090  END FOR Z
2100  Q%=0
2999  END DEFine set_shuffle
3000  DEFine PROCedure find_space
3010  FOR I=1 TO 9
3020   IF B%(I)=9 THEN P%=I
3030  END FOR I
3999  END DEFine find_space
4000  DEFine PROCedure win_pos
4010  S%=0
4020  FOR I=1 TO 9
4030   IF I<>B%(I) THEN S%=1
4040  END FOR I
4999  END DEFine win_pos
5000  DEFine PROCedure pause_1
5010  FOR I=1 TO 500
5020  END FOR I
5999  END DEFine pause_1
6000  DEFine PROCedure rnd_mve
```

Continued on Page 23

Spectrum/2068 ROMSwitch-Continued from Page 9

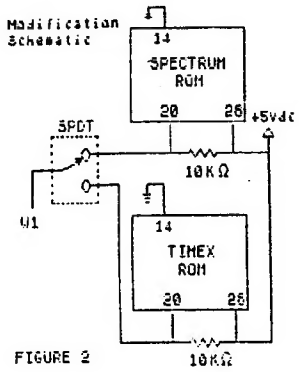
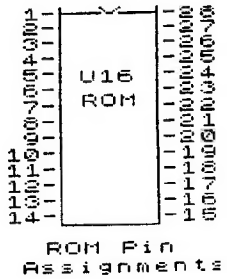


FIGURE 2



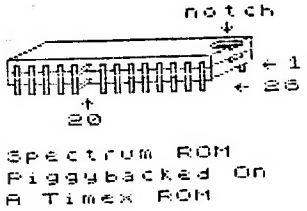


FIGURE 3

More POKES

Sinc-Link, July/August, 1987

Having been a ZX-81 computer enthusiast for a few years now, I have picked up many bits and bobs which have helped me on my journey through BASIC. I have compiled a list of some of these bits and bobs into the following list:

RAND USR 836
This is a loading function which loads your program and automatically breaks into it. To use the function, type in FAST and then RAND USR 836.

USR 3086
This function scrolls the screen and prints something at the same time. To use it in your program, type in PRINT TAB USR 3086;"whatever the message is" or if you want to want it 5 spaces from the beginning of the line, PRINT TAB USR 836 + 5;"whatever the message is".

RAND USR 0
This function clears all memory including whatever is above RAMTOP. It is also a quick way of restoring RAMTOP to normal if you have lowered it.

POKE 16419,x
This function will LIST any line from 0 to 255. Just LIST the line that you want to view from (e.g. LINE 17) and then type in POKE 16419,x where x is the line which you have just LISTed.

POKE 16418,0
This function will allow the use of the bottom two lines of the screen. Use the statement with a program, as it will not work after the program has been broken into or if it is not a program line or after the program has stopped. Do not INPUT or SCROLL in this mode, as the machine will crash. To get back into normal mode, type in: POKE 16418,2.

POKE 16510,0
If you have a machine code routine at line 1, and you do not wish it to be accidentally edited, type in POKE 16510,0 and line 1 will change to line 0. This line cannot be edited. If you want it changed back to line 1 again, type in: POKE 16510,1.

POKE 16389,68
If you have got a RAM-pack connected, and you wish to go into 1K Mode without disconnecting the RAM-pack, then you can lower RAM-TOP to 1K by typing in POKE 16389,68 and then NEW.

POKE 16389,128
If you are in 1K Mode, and you would like to get back to 16K Mode without losing your program, type in FAST and then POKE 16389,128. Now type in LIST and WAIT.

Yours faithfully,
S. Huggins,
Northampton.

2 QL JEWELS

Reprinted from Sinc-Link, July/August, 1987

Sound Experimentor

Rob Miles

Unlike most home computers the QL has a very limited noise making capability. What there is can only be dragged out by using the enigmatic BEEP command. This has 8 arguments, all of which are obscure. The only way to produce something vaguely melodic is by trial and error. The following quickie allows you to do exactly this.

```
100 REMark **** QL User -Beep experiment
110 REMark ****  Rob Miles 1985
120 duration=5000:pitch=100:pitch_2=0:grad_x=0:gra
d_y=0:wrap=0:fuzzy=0:random=0
130 REPeat sounder
140 CLS
150 set "Duration (-32768..32767) ?",duration,2
160 set "Pitch (0..255) ?",pitch,4
170 set "Pitch_2 (0..255) ?",pitch_2,6
180 set "Grad_x (-32768..15) ?",grad_x,8
190 set "Grad_y (-8..7) ?",grad_y,10
200 set "Wrap (0..32767) ?",wrap,12
210 set "Fuzzy (0..15) ?",fuzzy,14
220 set "Random (0..15) ?",random,16
230 AT 18,0:PRINT "Beep ";duration;",";pitch;",";p
itch_2;",";grad_x;",";grad_y;",";wrap;",";fuzzy;",
";random
240 BEEP duration,pitch,pitch_2,grad_x,grad_y,wrap
,fuzzy,random
250 dum$=INKEY$(-1)
260 END REPeat sounder
270 DEFine PROCedure set (name$,var,position)
280 LOCal buf$
290 AT position,0:PRINT name$;" ";var
300 AT position,0:PRINT name$;" ";
310 INPUT buf$
320 IF buf$<>"" THEN var=buf$
330 AT position,0:PRINT name$;" ";var;"
340 END DEFine set
```

Easel Print

D Duncan

The following 7 liner shows exactly how to use the graphics dump provided with EASEL. All you need is an EPSON compatible printer and the EASEL cartridge in mdv2.

```
120 MODE 8:PAPER 2:CLS
130 FOR n=1 TO 150
140 INK 7:FILL 1:CIRCLE n,50,20,.5,-n/2
150 INK 2:FILL 0:CIRCLE n,50,20,.5,-n/2
160 NEXT n
170 REMark Dump to Epson printer
180 a=RESPR(1024):LBYTES mdv2_gprint_prt,a
190 CALL a:OPEN #3,ser1:LIST #3:CLOSE #3
```

RLE Decoder

Reprinted from Ramtop, April, 1987

```
1005 REM ********************
1006 REM            RLE DECODER U
SED WITH RLE COMPILED BASIC
1007 REM ********************
1008 REM FROM TIME DESIGNS 2-87
1020 CLEAR 39999: PRINT #4: LOAD
 "rle.decode"CODE 30000
1090 REM        LOAD
1100 CLS : GO SUB 8000
1110 CLS : RANDOMIZE USR 30000
1190 REM      SAVE
1200 INPUT #0,AT 0,0;"FILE NAME=
";: LINE N$: GO SUB 8500: CLS
1210 RANDOMIZE USR 31265
1220 GO TO 1200
8000 PRINT INVERSE 1;AT 4,4;"DO
YOU WANT TO:"
8005 PRINT '''TAB 4;"1. LOAD FR
OM TAPE"';TAB 4;"2. LOAD FROM D
ISK"';TAB 4;"3. CATALOG": INPUT
 G: IF G<1 OR G>3 THEN GO TO 800
0
8010 IF G=1 THEN CLS : PRINT AT
10,8;"PLAY YOUR RLE TAPE": LOAD
""CODE 40000: RETURN
8020 IF G=2 THEN INPUT "WHAT IS
THE FILE NAME? ";N$;""FROM DRIVE
 #2 ";D: PRINT #4: LOAD N$CODE 4
0000: PRINT D: RETURN
8025 IF G=3 THEN INPUT "WHICH DR
IVE # ?";D: PRINT #4: CAT "";: P
RINT D: PAUSE 0: CLS
8030 GO TO 8000
8500 PRINT INVERSE 1;AT 4,4;"DO
YOU WANT TO:"
8555 PRINT '''TAB 4;"1. SAVE TA
PE"';TAB 4;"2. SAVE TO DISK"'';
TAB 4;"3. LOAD ANOTHER RLE FILE"
''';TAB 4;"4. RETURN": INPUT G:
IF G<1 OR G>4 THEN GO TO 8500
8560 IF G=1 THEN CLS : PRINT AT
10,0;"PREPARE TO SAVE YOUR RLE F
ILE": SAVE N$CODE 50000,6912:
RETURN
8570 IF G=2 THEN INPUT "TO WHAT
DRIVE # ?";D: PRINT #4: SAVE N$C
ODE 50000,6912: PRINT D: RETURN
8575 IF G=3 THEN GO TO 1025
8576 IF G=4 THEN RETURN
8580 GO TO 8500
9999 PRINT #4: SAVE "RLE" LINE 1
020: PRINT #4: SAVE "rle.decode
"CODE 30000,1970
```

From Tom Simon

ALRCO RP/M CP/M on the 2068

Reprinted from HATS, May 1987

CP/M has been available for Aerco FD-68 disk interface owners for quite some time now. It is simply a floppy disk that that you buy for $25.00. This is all that is needed because the computer has a Z80 processor in it. Computers with other CPUs such as the 6502 must buy an extra board with the Z80 on it.

RP/M is an operating system. This is what controls all operations of the computer. When you load the RP/M disk, the normal 2068 operating system is disabled and replaced with RP/M.

CP/M was introduced in 1974 by Gary Kildall. It has gone through some upgrades since then. The latest version is CP/M 3.0. The most popular version is 2.2. RP/M is functionally identical to CP/M 2.2 but it has some improvements such as a built in paged display. The file will stop so that you can read it before it scrolls off the screen.

The display is in 80 columns. It writes to the screen at 1200 baud. That is somewhat slow. Aerco also sells an auxillary terminal that connects to the 2068 through an RS-232 interface. You can then write to the screen at 9600 baud and have a much clearer display. My video wavers a little bit. It is most apparent when in RP/M. I think that this is due to noise from the computer power supply. I would like to get a better power supply somewhere. I bought Aerco's RS 232 interface so that I can use a 1200 baud modem. Maybe I will buy an RS 232 terminal if I can find one for a good price.

The RP/M disk comes with about 56 programs and files on it. Many of these are utility programs from the public domain. It looks like Aerco wrote some of the other programs on the disk. One program on the disk is Modem753. This is an upgrade of the original CP/M modem program. The version on the disk works with the Westridge 2850 modem. It is a terminal and file exchange program. I have downloaded CP/M programs from CompuServe and a local CP/M Bulletin Board. Downloading is one of the best but not the least expensive way to obtain software.

There are thousands of public domain CP/M programs. This is a good reason for having CP/M on any computer. So far I have about 11 or 12 disks of PD software. I was able to locate a firm that sells CP/M disk volumes at a low price. Unfortunately their service is somewhat slow. I want to locate a company that provides better service.

You can't just get CP/M software anywhere. There are some problems. Almost every manufacturer of CP/M computers came out with their own 5 1/4" disk format. So you must find someone that writes to your format. The RP/M can read and write to the Morrow MD-3 format. It is not as easy to obtain disks as an Osborne or a Kaypro owner. These are probably the two most popular CP/M running computers. However I have traded CP/M programs with a C-128 owner. He has a program that enables him to read and write to Morrow MD-3.

At one time you could buy lots of commercial CP/M software. Today there are only a few companies still selling it. Right now I am trying to locate a source of commercial programs at a reasonable price. Some commercial programs sell for hundreds of dollars. I may be able to find something for 30 or 40 dollars if I look around a bit.

In 1981, CP/M competed against MS-DOS to be the operating system of the IBM PC. CP/M lost. MS-DOS has become extremely popular and CP/M has taken a back seat. CP/M is an orphan like Timex Sinclair, but like TS, it still has some life left in it.

Screen Merge

Dave Bennett, HATS, May 1987

Here is a program which I downloaded from CompuServe. It merges two screens. The original used tape. I modified it for the Aerco FD-68. You will have to change it back to tape. Remove CAT "",. That does a disk directory. Change CAT "$$", to LOAD "$$". Remove lines like: LET S$=S$+".SCR". MOVE is like SAVE. Change the word Disc to Tape throughout the program. Have fun. -Dave Bennett

```
  5 REM SCREEN MERGE © 1985
        David A. Franson
 10 CLEAR 52E3
 20 GO SUB 1000
 30 GO SUB 500
 40 STOP
500 REM menu
520 PRINT AT 0,10."[redacted]"
530 PRINT
534 PRINT "   This program allo
ws you to   merge two screens.
Only the    colors of the curren
t screen    are displayed."
536 PRINT
540 PRINT "1 - Load screen from
disc"
545 PRINT
550 PRINT "2 - Save current scr
een to merge"
555 PRINT
560 PRINT "3 - Merge initial sc
reen with       current"
565 PRINT
570 PRINT "4 - Save current scr
een to disc"
575 PRINT
576 PRINT "5 - Print current sc
reen": PRINT
577 PRINT "6 - Exit program": P
RINT
580 PRINT "Enter - Toggle betwe
en current          screen and t
his menu"
590 PAUSE 0
595 LET a$=INKEY$
600 IF a$<"1" AND a$>"6" AND as
<>CHR$ 13 THEN GO TO 590
610 IF a$="1" THEN GO SUB 700
620 IF a$="2" THEN RANDOMIZE US
R 65333: RANDOMIZE USR 65281: PA
USE 0: CLS
630 IF a$="3" THEN RANDOMIZE US
R 65333: RANDOMIZE USR 65296: RA
NDOMIZE USR 65321: PAUSE 0: CLS
640 IF a$="4" THEN GO SUB 800
650 IF a$=CHR$ 13 THEN RANDOMIZ
E USR 65333: PAUSE 0: CLS
652 IF a$="5" THEN RANDOMIZE US
R 65333: COPY : PAUSE 0: CLS
655 IF INKEY$="6" THEN RETURN
660 GO TO 520
700 REM load screen from disc
702 CLS : CAT "",
705 INPUT "Title of Screen? ";s
$
709 LET s$=s$+".scr": CAT "s$",
710 RANDOMIZE USR 65321
720 PAUSE 0
725 CLS
730 RETURN
800 REM save current screen to
disc
810 INPUT "Title of screen? ";b
$
820 IF LEN b$>10 THEN GO TO 810
830 RANDOMIZE USR 65333
835 LET b$=b$+".scr"
840 MOVE "b$",52224,6912
860 RETURN
1000 REM poke code
1010 FOR n=65281 TO 65344
1020 READ a
1030 POKE n,a
1040 NEXT n
1050 DATA 1,0,24,33,0,64,17,0,23
1,237,176,201
1060 DATA 0,0,0
1070 DATA 17,0,64,33,0,231,6,24,
14,255,197,26,78,177,18,19,35,19
3,16,32,245,5,32,240,201
1080 DATA 1,0,27,33,0,64,17,0,20
4,237,176,201
1090 DATA 1,0,27,33,0,204,17,0,6
4,237,176,201,2
1100 RETURN
9995 STOP
9999 MOVE "screenmrge.bas",5
```

MTERM STUFF by Bill Strick

SMUG Bytes, February, 1987

Now that there is a sizeble group of MODEM owners, perhaps a little advice concerning the use of these marvels will promote a sharpening of interst in their use and an increase in the exchange of usful information between all of us. Following are some hints regarding data transmission via MODEM.

A. TO TRANSMIT (XMIT)

SENDER goes to BUFFER MENU and erases Buffer contents. Back to MAIN MENU, EXITs to BASIC and LOADS or MERGES data to be transmitted. (See Section C for details.)

Phone the person to receive the above data and determine (via voice) that the parameter settings agree as shown below:

```
SENDER
 BUF: CLOSED
 DUP: HALF
 LF:  ON
 CR:  OFF
 CON: NONE (text)
    :(HEX for other)

RECEIVER
 BUF: CLOSED (Opend by
 DUP: FULL     XMIT OP)
 LF:  OFF
 CR:  OFF
 CON: NONE    (text)
    :(HEX for other)

BOTH
 XMIT: OFF
 WORD: 7
 STOP: 1
 PRTY: EVEN
 DSPW: 32
```

SENDER informs RECEIVER to (1) clear buffer, (2) go to terminal mode, and (3) connect up via MODEM COMMAND M.

To access MODEM COMMANDS, press CAPS SHIFT & ENTER together. ENTER M to connect. SENDER also CONNECTS as described. Both users leave phone receiver off the hook. CONNECT will take place with a displayed signal and sound.

From this point, ANY activity is in the hands of SENDER ONLY!!

After CONNECT signal, SENDER opens the RECEIVER's buffer by executing a CONTROL R (CAPS SHIFT 7 and then enters an R).

SENDER now returns to MAIN/MENU using CAPS SHIFT 8 and calls up BUFFER MENU. ENTERs T to transmit text in buffer.

ENTER four times:
#1 after prompt- "Prompt String"
#2 after prompt- "Character Delay"
#3 returns SENDER to MAIN MENU
#4 enters TERMINAL MODE

This begins transmission which can be viewed on screen.

After end of transmission, SENDER closes RECEIVER's buffer with a CONTROL T (CAPS SHIFT & 7, then T).

SENDER then enters BELL signal (CONTROL G...CAPS SHIFT & 7, then G), which signals the end of

Continued on Page 12

Oldies but Goodies From the March, 1983 Lanham Sinclair Users Group Newsletter

Supplied by Hank Dickson

Using the T/S100 as a Drawing Board by Chris Seguin, Age 13

Enter the following program and RUN. Using keys 5 (left), 6 (down), 7 (up), and 8 (right), move the flashing cursor to the position on the screen where you wish to start. When you are ready to draw, hit the A key. Now use 5, 6, 7 and 8 keys to draw your picture. If you make a mistake, hit the D kay and backtrack again using 5 , 6, 7 and 8. To end the program, hit BREAK.

```
 1  REM  DRAWING BOARD
 5  REM  CHRIS SEGUIN, 1983
10  LET  A= 31
20  LET  B= 21
30  GOTO 130
40  PLOT A,B
50  IF INKEY$= "7" THEN LET B= B + 1
60  IF INKEY$= "8" THEN LET A= A + 1
70  IF INKEY$= "5" THEN LET A= A - 1
80  IF INKEY$= "6" THEN LET B= B - 1
90  IF INKEY$= "D" THEN GOTO 110
100 GOTO 40
110 PLOT A,B
120 UNPLOT A,B
130 IF INKEY$= "7" THEN LET B= B + 1
140 IF INKEY$= "8" THEN LET A= A + 1
150 IF INKEY$= "5" THEN LET A= A - 1
160 IF INKEY$= "6" THEN LET B= B - 1
170 IF INKEY$= "A" THEN GOTO 40
180 GOTO 110
```

Happy drawing!!

MTERM Stuff-Continued from Page 11

transmission (XMIT) to RECEIVER.

After BELL, both USERS disconnect by doing a MODEM COMMAND H (CAPS SHIFT & ENTER, then H), to "Hang up" modems. They can now converse freely on their telephones.

B. TO MOVE MTERM BUFFER CONTENTS TO MSCRIPT

To save material from Modem buffer, first note the length of Buffer used (BUFUSD). Then EXIT to BASIC and SAVE.

To Tape:
SAVE "(name)" CODE 26710,(length)
To AERCO DDS:
MOVE "(name).BIN",26710,(length)
To ZEBRA DDS:
SAVE *"(name)" CODE 26710,(length)

LOAD MSCRIPT. LOAD saved material from Home Menu.

C. TO TRANSMIT MSCRIPT FILES OR BIN.COD VIA MENU.

First, move file to MTERM buffer as outlined below:
Make a note of document (file) length (from a DIRECTORY or CATALOG listing or from a Header Reading).
SAVE document to tape or disk.
LOAD MTERM. Go to Buffer Menu.
Clear buffer. EXIT to BASIC.
Open up program area with DIM A$ (document length).

Since this expands VARS (not the program area):

POKE 23627, PEEK 23641:POKE 23628, PEEK 23642

Now LOAD
from Tape:
LOAD"" CODE 26710
from AERCO DDS:
CAT "(name).bin",26710
from ZEBRA DDS:
LOAD * "(name)" CODE 26710

The command, PRINT USR 54016, will restore MTERM with document fully installed in its Buffer and ready for transmission.

NOTE: If "Waiting Caller" service is on SENDER's phone, it will be necessary (before using MODEM) to cancel this service temporarily. This can be done by dialling STAR ("*") 70 for a touchtone phone or 1170 for a pulsetone phone.

NOTE: Some BBS systems require LF after each line, so you may have to add them before leaving MSCRIPT.

2068 FONTS

ZX APPEAL, May, 1987

```
  1 REM *** DATA FONT *** reprinted from the Louisville Users Group newsletter "SLUG".
 10 FOR n=30000 TO 30035: READ a: POKE n,a: NEXT n
 15 DATA 33,0,61,17,0,116,1,0,3,237,176,33,0,116,6,96,197,35,35,35,35,35,6,4,126,79,203,63,177,119,35,16,247,193,16,237,201
 20 RANDOMIZE USR 30000
 25 POKE 23606,0: POKE 23607,117
 30 STOP
 35 REM RANDOMIZE USR 30000
        turns on
 40 REM   POKE 23607,60
        turns off
 50 SAVE "DATA" LINE 10
```

```
  1 REM ..."Square Font"...by R.Glavas...from ZX Computing Mar/87
  2 REM ...for either 2068 or Spectrum
 10 LET mc=60000: LET chr=55000
 20 FOR f=mc TO mc+25: READ a: POKE f,a: NEXT f
 30 DATA 17,0,200,237,82,54,92,33,0,60,126,18,254,60,32,+3,62,1,25,18,19,35,124,254,64,32,-16,201
 40 RANDOMIZE chr: POKE mc+1,PEEK 23670: POKE mc+2,PEEK 23671: LET l=USR mc
 50 STOP
 60 SAVE "squarefont" LINE 1
```

NOTE: At the recent holiday gift exchange, a WINKY BOARD floated to the surface. Nobody could explain what it was. Here, from the CATS archives, is an explanation.

From the March, 1983 issue,
LSUG Newsletter
(Lanham Sinclair Users Group)

Hardware Review - WINKY BOARD II
by Jim Wallace

What's a Winky Board? It's a fantastic little board with two red LED's that wink at you when you have your playback level set properly. But it does much more than that. It filters both the HF noise (caused by the 16k RAM PAK) and the LF noise during LOADing. It duplicates tapes (direct tape-to-tape). It lets you eavesdrop using an earphone during the LOADing or duplicating. You can also SAVE on two cassettes simultaneously using two recorders. I still haven't tried all the configurations you can rig up with this very small (1 x 1.5-inch) board.

With this fantastic little device, I was able to load a tape that had so much ground-loop hum on it that I could barely hear the program signal.

I'm very impressed with the WINKY BOARD II and recommend it for everyone, not just those of you who are having tape load/save problems.

Name: WINKY BOARD II. Type: Tape Interface. Price: $24; $18 kit. Manufacturer: G. Russell Electronics, RD 1, Box 539, Centre Hall, PA., 16828.

Keeping Time in the Home Office by Chuck Dawson Ft. Worth, TX

Since the Sinclair computers have an internal timing feature, they can be used to make a clock display which will give you the time. Two basic programs are given below to do just that.

A Digital Clock

The first program provides you with a digital clock. The display will show the time in digits about three inches high and extending all across the screen.

Lines 130 and 140 control the timing. Line 130 counts the number of frames sent to the television since the last PAUSE and then holds until a specified number is reached. The PAUSE in the next line is used to fine tune things and also reset the frame counter for the next minute's cycle.

If your computer is capable of SLOW mode, you will see a display which stays rock steady until a minute passes and the last digit slowly changes itself into the next appropriate number. In the SLOW mode it does not always take exactly the same amount of time to update the display. I have noticed that, if the memory is nearly full, the computer seems to take longer to compute.

In the FAST mode, this trick will not work since no frames are sent during the compute cycle. So change line 130 to a PAUSE 3288 and line 140 to POKE 16437,255. The large numbers themselves are generated by PEEKing into the ROM's own character generating routine and enlarging it eight times. For faster updating, only the middle six lines are used. There are blank lines above and below each character so there is no reason to waste time reproducing these.

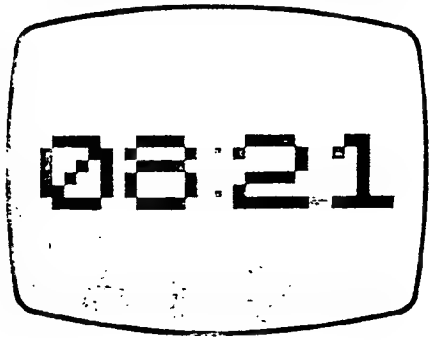
After you have typed in the program, use GOTO 700 to SAVE. The program will then run itself.

Listing 1. Digital Clock.

```
  10 REM "DIGITAL CLOCK" TO SAVE
 GOTO 700
  15 PRINT " INPUT TIME"
  20 INPUT TIME
  25 CLS
  30 LET M=INT (TIME/100)*60+TIM
E-INT (TIME/100)*100
  35 GOTO 140
  40 LET T=0
  50 LET D=INT ((INT (M/60))/10)
  55 GOSUB 500
  60 LET T=7
  65 LET D=(INT (M/60))-10*D
  70 GOSUB 500
  75 PLOT 31,20
  80 PLOT 31,27
  85 LET T=16
  90 LET D=INT (60*(M/60-INT (M/
60))/10+.05)
  95 GOSUB 500
 100 LET T=23
 110 LET D=M-INT (M/10)*10
 120 GOSUB 500
 130 IF PEEK 16437<>245 THEN GOT
O 130
 140 PAUSE 1248
 150 LET M=M+1
 160 IF M=1440 THEN LET M=0
 170 GOTO 40
 500 LET N=7905+D*8
 505 PRINT AT 7,T;
 510 FOR N=N TO N+5
 515 LET X=PEEK N
 520 FOR L=1 TO 7
 530 IF X<128 THEN GOTO 560
 540 LET C=128
 550 LET X=X-128
 560 LET X=X*2
 570 PRINT CHR$ C;
 580 NEXT L
 585 PRINT TAB T;
 590 NEXT N
 600 RETURN
 700 SAVE "DIGITAL CLOCK"
 710 RUN


 160 IF M=780 THEN LET M=60
 502 IF T=0 AND D=0 THEN LET N=7
681
```

Program 1. Digital Clock.



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MODEM FEVER

by Hank Dickson

At the excellent presentation given last October by STEVE GREEN on "Communicating with Sinclairs", some interesting sidelights were brought out vis-a-vis our growing "modem mania":

1. For modulating/demodulating on the fly, a handy instrument to have was the so-called "acoustic coupler". It contained the audio and electrical parts necessary to convert sound into digits, and vice versa. The telephone handset slipped into rubber "cuffs" which kept ambiant sound away. But, as CATS member pointed out, with the pronounced trend towards new, faddish, non-standard telephone sets which don't fit the rubber cuffs, the time has come to kiss the old acoustic coupler goodbye. Perhaps a place can be prepared for it in the Western Electric hall of fame, foreign attachment section.

2. When on the road, Steve Green has found many hotels/motels have gone to "hard-wired" phone sets with no modular jacks in sight. This makes it hard on traveling communicators. One member mentioned an experience in an airport motel in California where the telephone appeared hard-wired. But when the set was opened from the bottom, there was a modular jack hanging loose from wires which connected it to the main voice circuit. When a standard modular cord was used to connect the internal modem of a portable computer to the telephone, either voice or data communication was instantly available to the user for the duration of the trip.

3. Home computing enthuisiasts have to be careful about using telephone lines with the "call-waiting" feature. It's bad enough this creation of AT&T was apparently conceived in league with the Devil. When a caller tries to reach you and you are tied up with your modem, instead of getting a busy signal the caller will cause a series of clicks and beeps to be injected on the line you are using. This will be more than enough to cause the loss of your connection. Depending on your application, the loss you may suffer man range from minor to catastrophic. There is reportedly a protocol which home computerists can use to defeat the threat of call-waiting by entering a simple command from the keyboard. If the local Baby Bell divestee can be convinced to divulge this secret, it will be shared with you in a future issue of the C/N.

NOTE: An excellent videotape of the Steve Green presentation on "Communicating with Sinclairs" is available on a free loan basis to members of CATS. To arrange to see it in the convenience of your home, call: MIKE WARMICK, CATS SECRETARY [redacted], at 388-3817.

TS2068 ROM DISASSEMBLY by Ray Byler

Editor's Note: This is Part 1 of Ray's very complete disassembly of the 2068 and Spectrum ROMs.

TS2068 ROM ENTRY POINTS INDEXED BY ADDRESS

BASIC MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
0000	00000	PLUGIN	0000	00000	START
0008	00008	(Print Error)	0008	00008	ERROR-1
0010	00016	MRCH	0010	00016	PRINT-A-1
0018	00024	(Get Character)	0018	00024	GET-CHAR
001C	00028	(Tst Character)	001C	00028	TEST-CHAR
0020	00032	(Get Nxt Char)	0020	00032	NEXT-CHAR
0028	00040	(FP Calculator)	0028	00040	FP-CALC
0030	00048	(BC Workspaces)	0030	00048	BC-SPACES
0038	00056	(Maskable Int)	0038	00056	MASK-INT
0048	00072	(Keyboard Int)	0048	00072	KEY-INT
004F	00079	PHLAF	004F	00079	(Pop HL & AF)
0053	00083	(Error-2)	0053	00083	ERROR-2
0055	00085	LE3	0055	00085	ERROR-3
0066	00102	(NMI Ext Int)	0066	00102	RESET
0074	00116	NEXTCH	0074	00116	CH-ADD+1
0077	00119	NC_HL	0077	00119	TEMP-PTR1
0078	00120	TC_HL	0078	00120	TEMP-PTR2
007D	00125	(Control Chrs)	007D	00125	SKIP-OVER
0098	00152	TOKENS	0095	00149	(Token Table)

KSCAN MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
0227	00551	KSCAN	0205	00517	(Key Tables)
0268	00616	(Ex Mode Ltrs)	022C	00556	(Ex Mode Ltrs)
02B0	00688	K_SCAN	028E	00654	KEY-SCAN
02B8	00696	(Scanning Loop)	0296	00662	KEY-LINE
02E1	00737	UPD_K	02BF	00703	KEYBOARD
0317	00791	(New Key)	02F1	00753	K-NEW
0336	00822	(Key Repeat Fn)	0310	00784	K-REPEAT
035C	00860	K_BASE	031E	00798	K-TEST
0371	00881	CHCODE	0333	00819	K-DECODE
03F3	01011	PARP	03B5	00949	BEEPER
0436	01078	BEEP	03F8	01016	BEEP
04AA	01194	(Report B)	046C	01132	REPORT-B
04AC	01196	(Tone Table)	046E	01134	(Tone Table)

IO_1 MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
0500	01280	SENDTV	09F4	02548	PRINT-OUT
0528	01320	(Ctrl Char Tbl)	0A11	02577	(Ctrl Char Tbl)
053A	01338	P_LFT	0A23	02595	PO-BACK1
0554	01364	P_RT	0A3D	02621	PO-RIGHT
0566	01382	P_NL	0A4F	02639	PO-ENTER
0576	01398	(Print Comma)	0A5F	02655	PO-COMMA
0580	01408	(Print a "?")	0A69	02665	PO-QUEST
0584	01412	(Ink - Over)	0A6D	02669	PO-TV-2
0582	01458	SET_AT	0A9B	02715	(AT Ctrl Char)
05F0	01520	(Print Chars)	0AD9	02777	PO-ABLE
05F3	01523	STTVCU	0ADC	02780	PO-STORE
0607	01543	(Save Lwr Scrn)	0AF0	02800	PO-ST-E
0613	01555	(Save Prnt Bfr)	0AFC	02812	PO-ST-PR
061A	01562	LDTVCU	0B03	02819	PO-FETCH
0634	01588	(P-Bfr Fetch)	0B1D	02845	PO-F-PR
0638	01595	(Print Chars)	0B24	02852	PO-ANY
069A	01690	(Expand Chars)	0B65	02917	PO-CHAR
06B4	01716	(Print a Char)	0B7F	02943	PR-ALL
0708	01800	(Adjst fr Prtr)	0B83	03027	PO-ALL-6
0710	01808	ATTBYT	0BDB	03035	PO-ATTR
073F	01855	PUTMES	0C0A	03082	PO-MSG
0776	01910	PR_TV2	0C3B	03131	PO-SAVE
077C	01916	(Search Table)	0C41	03137	PO-SEARCH
0790	01936	TVFUL?	0C55	03157	PO-SCR
07C1	01985	ERR5	0C86	03206	REPORT-5
0833	02099	(Scroll? Msg)	0CF8	03320	(Scroll? Msg)
0888	02184	R_ATTS	0D4D	03405	TEMPS
08A6	02214	K_CLS	0D6B	03435	CLS
08A9	02217	CLLHS	0D6E	03438	CLS-LOWER
08EA	02282	CLS	0DAF	03503	CL-ALL
0914	02324	SETCUR	0DD9	03545	CL-SET
0914	02324	SETTVC	0DD9	03545	CL-SET
0939	02361	SCRL	0DFE	03582	CL-SC-ALL
097F	02431	CLS_B	0E44	03652	CL-LINE
09C3	02499	(Cl Attributes)	0E88	03720	CL-ATTR
09D6	02518	(Get DF Addres)	0E98	03739	CL-ADDR

IO_2 MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
0A02	02562	K_DUMP	0EAC	03756	COPY
0A23	02595	DUMPPR	0ECD	03789	COPY-BUFF
0A35	02613	CLPR	0EDF	03807	CLEAR-PRB
0A4A	02634	PRSCAN	0EF4	03828	COPY-LINE
0A82	02690	EDIT_K	0F2C	03884	EDITOR
0AE7	02791	INSA	0F81	03969	ADD-CHAR
0B06	02822	(Edit Keys Tbl)	0FA0	04000	(Edit Keys Tbl)
0B0F	02831	(Do Edit)	0FA9	04009	ED-EDIT
0B59	02905	(Cursor Down)	0FF3	04083	ED-DOWN
0B6D	02925	(Cursor Left)	1007	04103	ED-LEFT
0B72	02930	(Cursor Right)	100C	04108	ED-RIGHT
0B7B	02939	DELSYM	1015	04117	ED-DELETE
0B84	02948	(End Edit)	101E	04126	ED-IGNORE
0B8A	02954	(Restre ERR-SP)	1024	04132	ED-ENTER
0B97	02967	(Put Cursor)	1031	04145	ED-EDGE
0BBF	03007	(Cursor Up)	1059	04185	ED-UP
0BD7	03031	(Sym & Grph Cd)	1076	04214	ED-SYMBOL

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HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
0BE5	03045	(Edit Error)	107F	04223	ED-ERROR
0BFD	03069	DEL_K	1097	04247	CLEAR-SP
0C0E	03086	IN_K	10A8	04264	KEY-INPUT
0C83	03203	ECHO	111D	04381	ED-COPY
0CF6	03318	(Loc Wrk Space)	1190	04496	SET-HL
0D0D	03341	DESLUG	11A7	04519	REMOVE-FP

EDIT MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
0D1D	03357	K_NEW	11B7	04535	NEW
0D31	03377	INIT	11C8	04555	START/NEW
0D40	03392	(Check Memory)	11DA	04570	RAM-CHECK
0D7F	03455	NEW	1219	04633	RAM-SET
0E28	03624	(Edit Mode Lp)	12A2	04770	MAIN-EXEC
0E2F	03631	LED18	12A9	04777	MAIN-1
0E8D	03725	LED4	1303	04867	MAIN-4
0F65	03941	RPTMSG	1391	05009	(Report Msgs)
1118	04376	(Timex Logo)	15C9	05577	(Sinclair Logo)
1158	04440	(Add BASIC Line	155D	05469	MAIN-ADD
11AA	04522	CHINIT	15AF	05551	(Init Chan Info
11BF	04543	(Invld I/O Dev)	15C4	05572	REPORT-J
11C1	04545	SMINIT	15C6	05574	(Init Strm Data
11CF	04559	RDCH	15D4	05588	WAIT-KEY
11E1	04577	INCH	15E6	05606	INPUT-AD
11EA	04586	PUTDIG	15EF	05615	OUT-CODE
11ED	04589	SENDCH	15F2	05618	PRINT-A-2
1230	04656	SELECT	1601	05633	CHAN-OPEN
123D	04669	ERRO	160E	05646	REPORT-O
1248	04680	SEL_HL	1615	05653	CHAN-FLAG
1293	04755	(Channel Flags)	162D	05677	(Chan Code Tbl)
129A	04762	(Set K Flags)	1634	05684	CHAN-K
12A8	04776	(Set S Flags)	1642	05698	CHAN-S
12B3	04787	(Set P Flags)	164D	05709	CHAN-P
12B8	04792	INS1	1652	05714	ONE-SPACE
12BB	04795	INSERT	1655	05717	MAKE-ROOM
12CA	04810	REMGSZ	1664	05732	POINTERS
131E	04894	(Find Line No.)	168F	05775	LINE-ZERO
1324	04900	GET_LN	1695	05781	LINE-NO
132D	04909	LCU2	169E	05790	RESERVE
133F	04927	CLEL	1680	05808	SET-MIN
134E	04942	X_CALC	168F	05823	SET-WORK
1354	04948	RESET	16C5	05829	SET-STK
1363	04963	X_T_HL	16D4	05844	REC-EDIT
1368	04971	SEARCH	16DC	05852	INDEXER
1374	04980	SRCHSC	——	——	——

CHANS MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
139F	05023	CLOSE	16E5	05861	CLOSE
13A8	05032	RSTSTR	16EB	05867	(Make Strm Dt=0
13BE	05054	CLCHAN	1701	05889	CLOSE-2
1407	05127	(Clse Strm Tbl)	1716	05910	(Clse Strm Tbl)
1400	05133	(Close Strm Sub	171C	05916	CLOSE-STR
140F	05135	(Test Strm No.)	171E	05918	STR-DATA
142A	05162	OPEN	1736	05942	OPEN
1465	05221	OPCHAN	175D	05981	OPEN-2
14C7	05319	(Opn Strm Tbl)	177A	06010	(Opn Strm Tbl)
14CE	05326	(Open K Strm)	1781	06017	OPEN-K
14D2	05330	(Open S Stream)	1785	06021	OPEN-S
14D6	05334	(Open P Stream)	1789	06025	OPEN-P

LIST MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
14E1	05345	LIST	1795	06037	AUTO-LIST
1541	05441	K_LLST	17F5	06133	LLIST
1545	05445	K_LIST	17F9	06137	LIST
15A1	05537	PUT_SR	1855	06229	OUT-LINE
15AC	05548	LPO	1860	06240	(LD D,O)
15C9	05577	PUT	187D	06269	OUT-LINE2
1602	05634	(Skip Over No.)	18B6	06326	NUMBER
1600	05645	FLASHA	18C1	06337	OUT-FLASH
162D	05677	PR_CUR	18E1	06369	OUT-CURS
1658	05723	NEXT_L	190F	06415	LN-FETCH
1668	05736	DE_HL	191C	06428	LN-STORE
1671	05745	(Prnt Char/Tkn)	1925	06437	OUT-SP-2
1676	05750	(Add Spaces/No)	192A	06442	OUT-SP-NO
1683	05763	(Print Line)	1937	06455	OUT-CHAR
16D6	05846	FIND_L	196E	06510	LINE-ADDR
16E8	05864	CP_BC	1980	06528	CP-LINES
16F0	05872	SUBLIN	1988	06536	(Fnd Stmnt Sub)
16F3	05875	SUBLN1	1988	06539	EACH-STMT
1720	05920	RECLEN	1988	06584	NEXT-ONE
1745	05957	(Dif of Length)	19DD	06621	DIFFER
174D	05965	DEL_DE	19E5	06629	RECLAIM-1
1750	05968	DELREC	19E8	06632	RECLAIM-2
1768	05992	LINENO	19FB	06651	E-LINE-NO
1788	06024	PUT_BC	1A1B	06683	OUT-NUM-1
1795	06037	PUT_LN	1A28	06696	OUT-NUM-2
17B5	06069	(Bank Switch Cd	——	——	——
17CF	06095	GETAL	——	——	——
17EA	06122	AR_LN	——	——	——
17FF	06143	AR_NXT	——	——	——
18C6	06342	ARGS	——	——	——

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2068 ROM-Continued from Page 16

SYNTAX MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
1945	06469	(Cmd Offsets)	1A48	06728	(Cmd Offsets)
19E0	06624	TEMP38	1ADF	06879	P-SAVE
19E1	06625	TEMP39	1AE0	06880	P-LOAD
1A27	06695	SYNTAX	1B17	06935	LINE-SCAN
1A44	06724	LS4	1B28	06952	STMT-LOOP
1A95	06805	(Get Cmd Class)	1B52	06994	SCAN-LOOP
1AB2	06834	(Chk for Sprtr)	1B6F	07023	SEPARATOR
1AB9	06841	ENDSTT	1B76	07030	STMT-RET
1AD8	06872	EXECUTE	1B8A	07050	LINE-RUN
1AEC	06892	(Fnd Adrs Newln	1B9E	07070	LINE-NEW
1B00	06912	(Rem Command)	1BB2	07090	REM
1B09	06921	(Ftch Add Nxtln	1BB3	07091	LINE-END
1B15	06933	(Fnd # Newline)	1BBF	07103	LINE-USE
1B27	06951	(Set Nxtln use)	1BD1	07121	NEXT-LINE
1B44	06980	END?	1BEE	07150	CHECK-END
1B4A	06986	ENDTEM	1BF4	07156	STMT-NEXT
1B64	07012	(Cmd Class Tbl)	1C01	07169	(Cmd Class Tbl)
1B70	07024	(Class 3 Cmds)	1C0D	07181	CLASS-03
1B79	07033	(Jmp to TADDR)	1C16	07190	JUMP-C-R
1B82	07042	TEM1	1C1F	07199	CLASS-01
1B91	07057	ERR2	1C2E	07214	REPORT-2
1B8C	07100	LT22	1C59	07257	VAL-FET-2
1B0C	07132	DYADIC	1C79	07279	NEXT-2NUM
1BE5	07141	TEM6	1C82	07298	EXPT-1NUM
1BED	07149	SYNERR	1C8A	07306	REPORT-C
1BEF	07151	TEM10	1C8C	07308	EXPT-EXP
1C49	07241	OPTN0	1CDE	07390	FETCH-NUM
1C51	07249	STK_0	1CE6	07398	USE-ZERO
1C59	07257	STOP	1CEE	07406	STOP
1C58	07259	(If Command)	1CF0	07408	IF
1C78	07288	FOR	1D03	07427	FOR
1D28	07464	SKIP	1D86	07558	LOOK-PROG
1D55	07509	NEXT	1DAB	07595	NEXT
1D96	07574	(Read after 1st	1DEC	07660	READ-3
1D97	07575	READ	1DED	07661	READ
1E82	07810	DATA	1E27	07719	DATA
1E9D	07837	(Restore Comman	1E42	07746	RESTORE
1ECA	07882	RESTBC	1E45	07749	REST-RUN
1ED4	07892	RAND	1E4F	07759	RANDOMIZE
1EE4	07908	CONT	1E5F	07775	CONTINUE
1EF1	07921	JUMP	1E67	07783	GO-TO
1EFD	07933	GOTO_2	1E73	07795	GO-TO-2
1F04	07940	(Out Command)	1E7A	07802	OUT
1F0A	07946	(Poke Command)	1E80	07808	POKE
1F1E	07966	FIX_U1	1E94	07828	FIND-INT1
1F23	07971	FIX_U	1E99	07833	FIND-INT2
1F29	07977	ERR8	1E9F	07839	REPORT-8
1F2B	07979	(Run Command)	1EA1	07841	RUN
1F36	07990	CLEAR	1EAC	07852	CLEAR
1F39	07993	CLR_BC	1EAF	07855	CLEAR-RUN
1F99	08089	GO_SUB	1EED	07917	GO-SUB
1FB8	08123	CHK_SZ	1F05	07941	TEST-ROOM
1FCF	08143	ERR4	1F15	07957	REPORT-4
1FD4	08148	RETURN	1F23	07971	RETURN
1FEB	08171	PAUSE	1F3A	07994	PAUSE
2009	08201	BREAK?	1F54	08020	BREAK-KEY
201D	08221	DEF	1F80	08032	DEF-FN
2080	08320	(On Err Command	——	——	——
2001	08401	(Delete Command	——	——	——
2128	08488	SOUND	——	——	——

SYNTM0 MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
214F	08527	SYNTM0	1FC3	08131	UNSTACK-Z
2155	08533	K_LPR	1FC9	08137	LPRINT
2159	08537	K_PRIN	1FCD	08141	PRINT
217E	08574	P_SEQ	1FDF	08159	PRINT-2
21E7	08679	TERM?	2048	08264	PR-ST-END
220F	08719	STRITO	2070	08304	STR-ALTER
2228	08747	INPUT	2089	08329	INPUT
2268	08811	I_SEQ	20C1	08385	IN-ITEM-1
237E	09086	ERRH	21D4	08660	REPORT-H
2380	09088	NOTKB?	21D6	08662	IN-CHAN-K
2388	09099	(Tst fr Clr Cd)	21E1	08673	CO-TEMP-1
238C	09100	GR_COL	21E2	08674	CO-TEMP-2
239C	09116	(Test for Ink)	21F2	08690	CO-TEMP-3
23A6	09126	COLITM	21FC	08700	CO-TEMP-4
2388	09147	TV_COL	2211	08721	CO-TEMP-5
23DE	09182	COLOUR	2234	08756	CO-TEMP-7
241D	09245	HIFLSH	2273	08819	CO-TEMP-C
243E	09278	BORDER	2294	08852	BORDER
2454	09300	RSET	——	——	——
24D2	09426	NEWDEV	——	——	——
2569	09577	SKIPIT	——	——	——
25B9	09657	PASSEM	——	——	——
25C8	09672	CAT	1793	06035	CAT-ETC.
25CC	09676	FORMAT	1793	06035	CAT-ETC.
25D0	09680	MOVE	1793	06035	CAT-ETC.
25D4	09684	ERASE	1793	06035	CAT-ETC.

GRAPHS MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
2603	09731	SCRMBL	22AA	08874	PIXEL-ADD
2624	09764	F_PNT	22CB	08907	POINT-SUB
2635	09781	PLOT	22DC	08924	PLOT
263E	09790	PLOTBC	22E5	08933	PLOT-SUB
2660	09824	GET_XY	2307	08967	STK-TO-BC
2660	09837	GET_A	2314	08980	STK-TO-A

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HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
2679	09849	CIRCLE	2320	08992	CIRCLE
2608	09947	DRAW	2382	09090	DRAW
2810	10256	DRAW_L	24B7	09399	DRAW-LINE
2813	10259	DRAWLN	24BA	09402	(Compare X&Y)

EXPRN MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
2854	10324	EXPRN	24FB	09467	SCANNING
2889	10377	INTPT?	2530	09520	SYNTAX-Z
288E	10382	F_SCRN	2535	09525	S-SCRN$-S
2807	10455	F_ATTR	2580	09600	S-ATTR-S
28F8	10488	(Stick Command)	----	-----	------
2934	10548	(Free Command)	----	-----	------
296D	10605	(Scanning Func)	25AF	09647	S-U-PLUS
2986	10678	RND	25F8	09720	S-RND
29E5	10725	F_PI	2627	09767	S-PI
29F2	10738	F_INKY	2634	09780	S-INKEY$
2A87	10887	(Test Variable)	26C9	09929	S-LETTER
2C69	11369	NXT_HL	28AB	10411	FN-SKPOVR

IDENT MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
2C70	11376	FIND_N	2882	10418	LOOK-VARS
2D54	11604	GET_EL	2996	10646	STK-VAR
2E10	11792	SLICER	2A52	10834	SLICING
2E70	11888	PSHSTR	2AB2	10930	STK-STO-$
2E74	11892	PAEDCB	2AB6	10934	STK-STORE
2EBD	11965	LET	2AFF	11007	LET
2F17	12055	L_NUM	2B59	11097	L-NUMERIC
2FAF	12207	POPSTR	2BF1	11249	STK-FETCH
2FC0	12224	DIM	2C02	11266	DIM
3046	12358	ALNUM?	2C88	11400	ALPHANUM
3048	12363	ALPHA?	2C8D	11405	ALPHA

INOUT MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3059	12377	STKUSN	2C9B	11419	DEC-TO-FP
3009	12505	DIGIT?	2D1B	11547	NUMERIC
30E6	12518	STK_A	2D28	11560	STACK-A
30E9	12521	STK_BC	2D2B	11563	STACK-BC
30F9	12537	ININT	2D3B	11579	INT-TO-FP
3100	12557	XEY	2D4F	11599	E-TO-FP
3130	12605	LDDE	2D7F	11647	INT-FETCH
314A	12618	STDE_U	2D8C	11660	P-INT-STO
314C	12620	STDE_S	2D8E	11662	INT-STORE
3160	12640	FP2BC	2DA2	11682	FP-TO-BC

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3193	12691	FP2A	2DD5	11733	FP-TO-A
31A1	12705	OUTPUT	2DE3	11747	PRINT-FP

SUMS MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
335A	13146	SUMS	2F9B	12187	PREP-ADD
3379	13177	SUMSLD	2FBA	12218	FETCH-TWO
339C	13212	SHIFT	2FDD	12253	SHIFT-FP
33CE	13262	SUB	300F	12303	SUBTRACT
3303	13267	ADD	3014	12308	ADDITION
3468	13416	MULT	30A9	12457	HL=HL*DE
3489	13449	TIMES	30CA	12490	MULTIPLY
356C	13676	ERR6	31AD	12717	REPORT-6
356E	13678	DIVIDE	31AF	12719	DIVISION
3503	13779	TRUNC	3214	12820	TRUNCATE
3656	13910	FLOAT	3297	12951	RE-STACK

CALC MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3684	13956	CALC	32C5	12997	STK-ZERO
371A	14106	CTRO	335B	13147	CALCULATE
3768	14184	ROOM?	33A9	13225	TEST-5-SP
3773	14195	STK_M	3384	13236	STACK-NUM
377F	14207	RAMNO	33C0	13248	MOVE-FP
37C5	14277	ARRAY	3406	13318	LOC-MEM
3808	14344	(Series Gen Sub	3449	13385	SERIES-06-ETC.
382D	14381	NEGATE	346E	13422	NEGATE
3864	14436	(In Command)	34A5	13477	(In Command)
3868	14443	(Peek Command)	34AC	13484	(Peek Command)
3882	14466	USRRET	----	-----	------
3904	14596	TESTO	34E9	13545	TEST-ZERO
3926	14630	STBOOL	3508	13579	FP-0/1

FUNCTS MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3ABB	15035	INTDIV	36A0	13984	N-MOD-M
3ACA	15050	INT	36AF	13999	INT
3ADF	15071	EXP	36C4	14020	EXP
3B2E	15150	LN	3713	14099	LN
3B9E	15262	ANGLE	3783	14211	GET-ARGT
3BC5	15301	COS	37AA	14250	COS
3BD0	15312	SIN	37B5	14261	SIN
3BF5	15349	TAN	37DA	14298	TAN
3BFD	15357	ATN	37E2	14306	ATN
3C4E	15438	ASN	3833	14387	ASN
3C5E	15454	ACS	3843	14403	ACS

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HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3C65	15461	ROOT	384A	14410	SQR
3C6C	15468	TO_THE	3851	14417	TO-POWER

TAPEMSG MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3C89	15497	SEPRMT	09A1	02465	(Cassette Msgs)
3CA9	15529	LDMES	09C1	02497	(Program: msg)

CH_SET MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
3D00	15616	CH_SET	3D00	15616	(Char Dot Ptrns

XBASIC MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
X000	X0000	XBASIC	---	---	---

TAPE MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
X068	X0104	W_TAPE	04C2	01218	SA-BYTES
X0E5	X0229	W_BORD	053F	01343	SA/LD-RET
X0FC	X0252	R_TAPE	0556	01366	LD-BYTES
X189	X0393	RD_BIT	05E3	01507	LD-EDGE-2
X18D	X0397	R_EDGE	05E7	01511	LD-EDGE-1
X1AB	X0427	SLVM	0605	01541	SAVE-ETC
X58F	X1423	(Verify Command	07CB	01995	VR-CONTROL
X5C6	X1478	(Ld Data Block)	0802	02050	LD-BLOCK
X5CC	X1484	LOAD	0808	02056	LD-CONTRL
X6E5	X1765	MERGE	0886	02230	ME-CONTRL
X851	X2129	SAVE	0970	02416	SA-CONTRL
X8AA	X2218	AKEY	15D4	05588	WAIT-KEY

INIT MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
X8E7	X2279	EXINIT	---	---	---
X9F4	X2548	BLDSCT	---	---	---
XC4C	X3148	RESSCT	---	---	---

CHNG_VID MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
XDB0	X3504	OPDFIL	---	---	---
XE27	X3623	CLDFIL	---	---	---
XE8E	X3726	CHNG_V	---	---	---

PASSING MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
XF43	X3907	PASSIN	---	---	---

BS MODULE

HEX	DEC	TS2068 NAME	HEX	DEC	SPECTRUM NAME
XF8A	X3978	GOTO_B	---	---	---
XF99	X3993	CALL_B	---	---	---

* The Timex 2068 Technical manual lists:

TSNAME	HEX
DELSYM	0B7E
NEW	0D82
LDMES	3CA8

H.E. Meppler (Sep 85 CATS Newsletter) lists:

TSNAME	HEX	SPNAME	HEX
DELSYM	0B7E	(ED-DELETE)	1016
NEW	0D82	(RAM-SET)	1219
INPUT	222B	(INPUT)	208E
CALC	3684	(? STK-ZERO)	3254
LDMES	3CA8	(Program: Msg)	09C1

N.A. Pashtoon (May/June 88 Sincus News) lists:

TSNAME	HEX	SPNAME	HEX
DEL_K	0BFE	(CLEAR-SP)	1097
LDMES	3CA8	(Program: Msg)	(09C1)
LINENO	1768	(E-LINE-NO)	198F
PAUSE	1FEF	(PAUSE)	1F3A
READ	1D96	(READ-3)	1DEC

CORE WAR

by Timothy Swenson

In May 1984 issue of Scientific American, A. K. Dewdney in his Computer Recreations column describes a game called Core War. The game is run by a monitor program called MARS (Memory Array Redcode Simulator). Essentially what the program does is to control two other programs written in an assembly-like language called REDCODE. The two programs are designed to try to destroy each other. They do this by somehow stopping the other program from running. They can put bad data in the middle of the program, take over control of the program, etc.

MARS is a computer simulation of a computer. It uses an array of strings to simulate memory spaces and executes programs that run in these spaces. The program executes one line of code from one Redcode program and then another line from the other. This continues until MARS can not execute a command. The program that bombs out is the program that loses.

Redcode is comprised of the following commands:

MOV A B - Move contents of address A to address B ADD A B - Add contents of address A to address B and put results in address B SUB A B - Subtract contents of address A from address B and put results in address B JMP A - Transfer control (jump) to address A JMZ A B - Jump to address A if contents of address B is equal to zero JMG A B - Jump to address A if contents of address B is greater than zero DJZ A B - Subtract one from contents of address B and jump to address A if contents of address B is equal to zero CMP A B - Compare contents of address A and B then skip next instruction if unequal DAT A - Non-executabel statement, used for storage of numbers RET - Used to end program. Not really part of REDCODE but it is used by the program to know the end of your program when reading it in from the data statements.

All of the addresses in Redcode are relative. PC is the Program Counter, this controls what line MARS is executing. MOV 0 1 means to put the contents of address PC+0 (in other words the current line) and put it in address PC+1 (the next line). Negative numbers are allowed to mean addresses before the PC.

Redcode does make provisions for direct and indirect addressing. A # before a number is direct addressing and an @ is used for indirect. MOV #0 1 means to put the number 0 in the address 1+PC. In indirect the commands:

DAT 20 MOV 0 @-1 means to put the contents of address 0+PC and store it at the address pointed at by the number at PC-1 (the previous line). MARS goes and gets the number stored at PC-1 and finds 20, it then puts the data at that address, PC+20.

Indirect addressing may be used for both A and B arguements, direct may be used for A, but direct may only be used for B with the CMP command. All other commands may not use direct addressing of B.

I must spend a minute and talk about the DAT command. The command itself does not execute, but it tells MARS that data is stored at this address. DAT statements are used similarly to variables. If you are going to add the contents of two addresses then they must be DAT statements. If a number is stored in an address that is not preceded by DAT it is considered a bug and the program bombs out.

The MOV and DAT commands interact different together. If you MOV #0 20 and address PC+20 is a DAT statement the 20 is added so that at PC+20 is stored DAT 0. But if PC+20 is not a data statement then just 0 is stored at PC+20. This is used to put "bombs" in programs. If you can drop a 0 in the middle of the other program then MARS will halt when it gets to that line causing the other program to crash.

Here are a few example programs:

IMP - copies itself to the next address and plows through memory.

MOV 0 1 RET

Dwarf - This puts 0's in every 5th address, laying down a barrage of 0's.

DAT -1 ADD #5 -1 MOV #0 @-2 JMP -2 RET

Gemini - This program copies itself forward 100 addresses in memory and then moves control to the copy.

DAT -2 DAT 99 MOV @-2 @-1 CMP -3 #8 JMP 4 ADD #1 -5 ADD #1 -5 JMP -5 MOV #-2 93

MOV #99 93 JMP 93 RET

To run the program, type the two programs you want into the data statements in lines 2000 (prog #1) and 3000 (prog #2). Then RUN the program. As each line of code is executed it is printed out on the screen along with the address at which it is at. This way you can the progress of the two programs. Also included in the program is a procedure called list_memory. This procedure copies out the contents of the memory array to the screen. This way you can see what is in memory.

There is a constant called top_mem. This defines how big the memory array is. If you find memory too small, just increase this constant.

```
100 DEFine PROCedure rs: DELETE flp2_Core_War_bas: SAVE flp2_Core_War_bas: END DEFine

110 top_mem=1000

120 DIM memory$(top_mem,14)

130 prog1=2000

140 prog2=3000

150 pc_prg1 = RND(1 TO 1000)

160 pc_prg2 = RND(1 TO 1000)

170 IF ABS(pc_prg1-pc_prg2)<100 THEN GO TO 150

180 load_prog

190 CLS #2: CLS #0 : CLS

200 PRINT #2," P R O G R A M # 1"

210 PRINT " P R O G R A M # 2"

220 REPeat main_loop

230 pc_main = pc_prg1

240 prog=1
```

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The Face Clock

The second program will give a display with the traditional face clock. The face is drawn only once and then the hands are PLOTed in and UNPLOTed when no longer needed. This program is suggested by an exercise in the chapter on time and motion in the ZX81 manual.

Listing 2. Hand Clock.

```
  10 REM "FACE CLOCK" TO SAVE GO
TO 500
  12 PRINT " INPUT TIME"
  14 INPUT T
  16 LET H=2*INT (T/100)
  18 LET T=T-100*INT (T/100)
  20 IF T>15 THEN LET H=H+1
  22 IF T>45 THEN LET H=H+1
  24 CLS
  26 FAST
  28 FOR D=1 TO 12
  40 PRINT AT 10-10*COS (D/6*PI),
,13+10*SIN (D/6*PI);D
  50 NEXT D
  60 SLOW
  65 POKE 16437,250
  70 GOTO 150
  80 LET P=0
  90 LET C=X
 100 LET D=Y
 110 GOSUB 1000
 120 LET T=T+1
 130 IF T=60 THEN LET T=0
 140 IF T=16 OR T=46 THEN GOTO 2
50
 150 LET P=1
 160 LET L=T/30*PI
 170 LET X=27+18*SIN L
 180 LET Y=22+18*COS L
 190 LET C=X
 200 LET D=Y
 210 GOSUB 1000
 220 GOSUB 310
 230 IF PEEK 16437>241 THEN GOTO
 230
 235 PAUSE 219
 240 GOTO 80
 250 LET M=M+1
 260 GOTO 24
 310 LET P=1
 320 LET A=27
 330 LET B=22
 340 LET G=M/12*PI
 350 LET C=27+12*SIN G
 360 LET D=22+12*COS G
 370 GOSUB 1000
 380 RETURN
 500 SAVE "FACE CLOCK"
 510 RUN
1000 LET A=27
1002 LET B=22
1006 LET U=C-A
1010 LET V=D-B
1020 LET O=SGN U
1030 LET L=SGN V
1040 LET Z=SGN U
1050 LET D=0
1060 LET M=ABS U
1070 LET N=ABS V
1080 IF M>N THEN GOTO 1130
1090 LET Z=0
1100 LET O=SGN V
1110 LET M=ABS V
1120 LET N=ABS U
1140 LET S=INT (M/2)
1150 FOR I=0 TO M
1160 IF P=1 THEN PLOT A,B
1165 IF P=0 THEN UNPLOT A,B
1170 LET S=S+N
1180 IF S<M THEN GOTO 1230
1190 LET S=S-M
1200 LET A=A+O
1210 LET B=B+L
1220 GOTO 1250
1230 LET A=A+Z
1240 LET B=B+D
1250 NEXT I
1260 RETURN
```

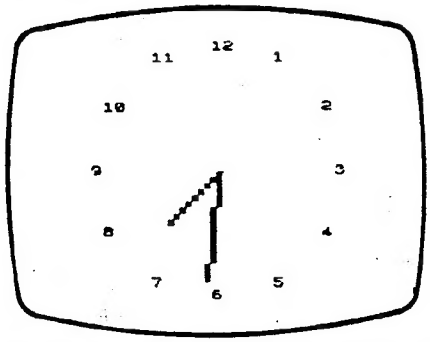
If you have only 2K RAM, you will find that this program fills up almost all available space. If you have a 16K module, you can add the second hand and other decorative touches.

After you have typed in the program, use GOTO 500 to SAVE. The program will then run itself.

Setting Your Clock

In both programs, after the program is running, you are asked to input the time. Do not use a colon; just enter the figures: Not 3:45 but 345.

Program 2. Face Clock.



A Calendar

From time to time we want to see how a certain month falls in the calendar or what day of the week a certain date is on. Most calendars show only one year on either side of the calendar year. Thus dates beyond the printed calendar have to be calculated laboriously by hand with the danger that we may have overlooked a day in an irregular month. This program provides the solution to the problem.

With this program you can enter any month and any year, and the computer will show you the calendar for that month. Well, not exactly any year. It has to be between September 14, 1752, and February 28, 2200. Nevertheless that range covers most dates of interest.

After you have typed in the program, use GOTO 300 to SAVE. The program will then run itself. The prompts will call for inputting the month and year. Type in at least the first three letters of the month and hit ENTER; then type in the year and hit ENTER. The computer will then display the calendar for that month. You can use either FAST or SLOW mode but remember that it takes much longer to produce the calendar in the SLOW mode.

To test whether the program is working right, try DECEMBER 1941. We remember that the 7th was on a Sunday. Now try some other dates. Try your birth month and year. I use this program to plan business trips and vacations for the coming year even before I start getting those free calendars in the mail in December.

This is a good program for showing off your computer to your friends. Try it at your next party.

Program 3. Calendar.

```
        JANUARY 1983

SUN MON TUE WED THU FRI SAT
                        1
 2   3   4   5   6   7   8
 9  10  11  12  13  14  15
16  17  18  19  20  21  22
23  24  25  26  27  28  29
30  31
```

```
        FEB 6000

SUN MON TUE WED THU FRI SAT
            1   2   3   4   5
 6   7   8   9  10  11  12
13  14  15  16  17  18  19
20  21  22  23  24  25  26
27  28  29
```

```
        FEB 999999

SUN MON TUE WED THU FRI SAT
        1   2   3   4   5   6
 7   8   9  10  11  12  13
14  15  16  17  18  19  20
21  22  23  24  25  26  27
28
```

Listing 3. Calendar.

```
   5 REM "CALENDAR" TO SAVE GOTO
 300
  10 LET A$="CDJANFEBMARAPRMAYJU
NJULAUGSEPOCTNOVDECSUN MON TUE W
ED THU FRI SAT"
  15 PRINT " INPUT MONTH"
  20 INPUT B$
  25 FOR M=1 TO 12
  30 IF B$(1 TO 3)=A$(3*M TO 3*M
+2) THEN GOTO 45
  35 NEXT M
  40 GOTO 20
  45 PRINT " INPUT YEAR"
  50 INPUT Y
  55 IF Y<1752 THEN GOTO 50
  60 CLS
  65 PRINT AT 3,8;B$;" ";Y
  70 PRINT AT 6,0;A$(29 TO )
  75 GOSUB 200
  80 PRINT AT 8,Z*4;
  85 LET M=M+1
  90 GOSUB 200
  95 IF Z=0 THEN LET Z=7
 100 FOR I=1 TO 31
 110 PRINT " ";I;" ";
 120 IF I<10 THEN PRINT " ";
 130 IF I>27 AND 33-PEEK 16441=Z
*4 THEN STOP
 140 IF PEEK 16441=5 THEN PRINT
 '';
 150 NEXT I
 200 LET X=0
 210 IF M=1 OR M=2 THEN LET X=1
 220 LET L=Y-X
 230 LET X=M+X*12
 240 LET P=INT (L/100)
 250 LET Z=INT (13*(X+1)/5)+INT
(5*L/4)+INT (P/4)-P
 260 LET Z=Z-7*INT (Z/7)
 270 RETURN
 300 SAVE "CALENDAR"
 310 RUN
```

Financial Program-Continued from Page 5

```
  15 GO SUB 34
  16 PRINT PAPER 0; INK 5;AT 10,2;"ANO
THER CALCULATION?(Y or N)"
  17 INPUT Z$
  18 IF Z$="Y" OR Z$="y" THEN GO SUB 3
4: GO TO 5
  19 CLS : PRINT AT 10,9; FLASH 1; INK
 1;"HAPPY INVESTING"; FLASH 0: STOP
  20 GO SUB 34: PRINT PAPER 0; INK 5;A
T 10,2;"ENTER INTEREST RATE PAID ON";A
T 11,2;"NON-TAXABLE INVESTMENT": INPUT
 NTI: LET NTI=NTI/100
  21 LET ER1=NTI/W
  23 GO SUB 34: PRINT PAPER 0; INK 5;A
T 10,2;"THE EQUIVALENT INTREST";AT 11,
2;"FOR A TAXABLE INVESTMENT";AT 12,2;"
WOULD BE ";ER1*100;"%": PAUSE 0
  24 GO SUB 34: PRINT PAPER 0; INK 5;A
T 10,2;"ANOTHER CALCULATION?(Y or N)"
  25 INPUT Z$
  26 IF Z$="Y" OR Z$="y" THEN GO SUB 3
4: GO TO 5
  27 CLS : PRINT AT 10,9; INK 1; FLASH
 1;"HAPPY INVESTING"; FLASH 0: STOP
  28 CLS : PAPER 6: FOR N=0 TO 31: PRI
NT OVER 1;AT 0,N; INK 5;" ": NEXT N
  29 FOR N=1 TO 21: PRINT OVER 1; INK
5;AT N,31;" ": NEXT N
  30 FOR N=30 TO 1 STEP -1: PRINT OVER
 1; INK 5;AT 21,N;" ": NEXT N
  31 FOR N=21 TO 1 STEP -1: PRINT OVER
 1; INK 5;AT N,0;" ": NEXT N
  32 RETURN
  33 STOP
  34 PRINT INK 6;AT 9,2; INVERSE 1;"
                          ";AT 10,2;"
                           ";AT 11,2
;"                          ";AT 12
,2;"                          ": IN
VERSE 0
  35 RETURN
  36 SAVE /"EQUI-INT." LINE 1
```

Professional Publisher-Continued from Page 6

store the alphabets could have been used to better advantage. Third, large "display type" alphabets, once you get out of the designed height and width, suffer from a terminal case of the "jaggies". Large rounded letters like P, Q, S, etc. aren't smooth. They have the "stair step" look. Finally, it can only hold 2 pages in memory. No problem, you say, just save them to disk. Well it *is* a problem when it comes to printing. A good dtp program should be able to print an entire newsletter in one operation. This newsletter, done on the Atari, is printed that way. I start the printing operation around 10 PM and when I get up in the morning it is all finished. You can't do that with Professional Publisher. It's one page at a time. For this reason, it's sort of unwieldy for anything greater than a single page newsletter.

Now one final observation. Perhaps this is an unfair comparison, but I feel that the program is way overpriced when the better Atari dtp programs (Publisher ST and Page Stream) are priced at $79 and $129. I feel these two programs are far better for dtp than Professional Publisher.

So, how do I rate Professional Publisher? For a one page or less dtp program, three out of five stars. If it had a decent text font and could produce large smooth letters, I'd have to say that it would be a five star buy. If you are looking for a dtp program that will produce a multipage newsletter, and you are willing to stand by and set-up each page during the printing process, Professional Publisher will be adequate for your needs. For the QL, this is the best dtp program on the market, realizing, of course, that the contenders are few; however, compared to dtp programs on other machines, it leaves a lot to be desired.

Editorial-Continued from Page 2

have used some over the last 18 months, but I was to stupid to realize it.

- **CAPITOLFEST/ CAPITALFEST?**

Several years ago, we had an argument as to what our group name was CapitOl or CapitAl Area Timex Sinclair User Group. As you can see, the "A" won out. Actually it wasn't a hard decision since the "O" word designates the building and the "A" word is used for the seat of government. If you've noticed the Fest ads and then some of the other articles, you will see it spelled both ways. "So what?" you say. This time I'll have to agree with you. It doesn't matter whether you spell it with an "O" or an "A", this is going to be one monumental blow-out. For those of you from other user groups, if you aren't in Washington, DC on May 5, 6, and 7, you will be missing a fest that they will be talking about for years. Call our BBS and get a complete run down on the activities and the other goings-on in the Washington area. This would seem to be the perfect vacation. You can indulge you computer whims and your family can enjoy the treasures of the town. If you are familiar with the usual DC hotel rates, the $62/night rate at the 'Fest headquarters is a steal. Futhermore, with the Metro being so close you can park your car and beat the high cost of parking in the downtown area.

I hope you enjoy this issue and see you at the 'Fest!

Rambling-Continued from Page 1

public domain software libraries covering all of the Sinclair products from the ZX-81 to the Z-88. He is putting together a publication committee to determine the format and contents of a newsletter. An election process for various officers is now underway with the results expected by March 27th.

See you at the meeting!

Bill

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Advertising Rates
Full page $25; 1/2 page $15; 1/4 page $10; 2" x 2 1/2" $7

Shifting Squares-Continued from Page 9

```
6010 I%=RND(1 TO M%(P%))
6020 J%=M$(P%,I%)
6999 END DEFine rnd_mve
7000 DEFine PROCedure do_move
7010 T%=B%(P%)
7020 B%(P%)=B%(J%)
7030 B%(J%)=T%
7040 Q%=P%
7050 P%=J%
7999 END DEFine do_move
```

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CATS maintains a great is exchange of newsletters with approximately 30 Users Groups across the U.S. Clubs not sending a n/l to us for six months are automatically taken off the list.

Meetings

Monthly meetings are held from 11 AM to 4:30 PM, on the second Saturday of each month, at the New Carrollton Public Library.

Newsletter

Memberships cost $18 per year, are good for 12 months, and include all privileges (access to libraries, group buys, etc.). A newsletter subscription only is available for $12 per year.

Networks

Timex SIG on Compuserve: Wednesday night, 10 P.M. Eastern time (GO CLUB).

02X BBS: (505) 522-1081 FIDO net 15, node 6. East Coast dial (703) 471-4815 FIDO net 18, node 9.

CATS BBS: (301) 588-0579. 8-N-1. Capitalfest and general information. 24 hours a day.

CATS Newsletter
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FIRST CLASS

The next meeting of CATS will be held on:

Saturday, March 11, 1989 11:00 AM Hardware Workshop
2:00 PM General Meeting

At: New Carrollton Public Library
7414 Riverdale Road (Hwy 410), New Carrollton, MD

IF YOU ARE NOT A MEMBER OF CATS, THIS IS THE ONLY ISSUE YOU WILL RECEIVE

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